

**THE CONCEPT OF BIODIVERSITY AND  
CONSERVATION IN BĀṆABAṬṬA'S  
WORKS**

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By

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## **CERTIFICATE**

**This is to certify that the thesis entitled “THE CONCEPT OF BIODIVERSITY AND CONSERVATION IN BĀṆĀBAṬṬĀ'S WORKS” is an authentic record of research work carried out by Mrs. Vrinda Venugopal, for the degree of Doctor of Philosophy in Sanskrit of University of Calicut, under my supervision and guidance and that no part thereof has been presented before for any other Degree, Diploma or Associateship in any other University.**

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**(Supervising Teacher)**

## **DECLARATION**

I, Vrinda Venugopal., hereby declare that this dissertation entitled "THE CONCEPT OF BIODIVERSITY AND CONSERVATION IN BĀṆĀBAṬṬA'S' S WORKS" submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Sanskrit has not been previously formed the basis for any Degree, Diploma or Fellowship or other similar title or recognition in this university.

C.U. Campus

Vrinda Venugopal

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## PREFACE

The term ‘Biodiversity’ was first used by Walter. G. Rosen in 1985. Biodiversity is the shortened form of biological diversity means the ‘bio-richness found in plants, animals and micro-organisms existing on the earth’. The term universalized through the biodiversity convention held in connection with the Rio Earth summit 1992 bears multiple definitions. <sup>1</sup>The interdependence and co-existence of the organisms help the existence of all living beings on the earth possible. We can ensure supply of our basic needs of life like availability of air, food, water and such direct and indirect benefits by virtue of conservation of biodiversity.

“Biodiversity is love, Biodiversity is life” – is the slogan highlighted by the UN in 2010, the International Year of Biodiversity.

Ancient Indians understood that all living beings are interrelated besides being dependent on others for existence. Hence while adoring every natural phenomenon they observed the nature closely. In the Vedas, the ancient Indians recorded their observations of nature and the universal powers keeping severance for various universal phenomena in the mean time.

The influence of Vedic composition can be seen clearly reflected in Sanskrit literature. Literature being the reflection of an age and life and also being the proof of an existent civilization, poets were always eager to

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<sup>1</sup> Biological diversity means the variability among living organisms from all sources including interalia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species between species and of ecosystems (UNEP 1992).  
Joshi P.C. and Namitha Joshi, A.P.H. Publication Corporation, New Delhi, 2009.

portray nature and its living beings with keen observation in picturesque details. In the epics *Rāmāyaṇa* and *Mahābhārata*, plants and animals are described with individual characteristics of each. Literary icons like Bhāsa and Kālidāsa never failed to depict the nature's spontaneous beauty while portraying their extensive knowledge of the organic world in elegant colours.

Besides these poets, Bāṇabhaṭṭa adorns an iconic status in Sanskrit literature by imbibing the spirit of such literary and scientific works together with that of the Purāṇas and the Indian epics, then by mixing them with his observational sense, creative purity and repertoire of vocabulary. Bāṇa describes every single image in nature i.e., mountains, dense woods, birds, animals, insects, what is more even a tiny ant or a blade of grass in the varying season to perpetually invoke the reader's mind.

This love and close bond with the bygone age is absent in the present generation which has trodden afar off in this age of development, globalization and industrialization. Present man fails to understand the invaluableity of nature, its resources and the vibrant living world around. He started to exploit nature to get ephemeral progress. Consequently, changes owned in ecology and climate complementing the problems of air pollution, atmospheric pollution and water pollution, draught, extinction, ozone synthesis, green house effect, global warming etc. which ultimately lead to drastic climatic change in turn to seriously affect the ecosystem and the life on the earth. In the context of this calamitous age when the UN and other eco-preservation organizations seek remedial measures to the crisis, this thesis aims to look back, explore and carefully analyse the

ecologically rich part, the then existing plants and animals and nature's equilibrium. The relationship between nature and the man and their ways of protecting and preserving nature, simultaneously examining how the knowledge can be used to enlighten present day bioinformatics.

The thesis comprises of eight chapters. The first chapter attempts to analyse the topic biodiversity, its definition, and its relation with the ancient Indians as well as to unearth the descriptions in relation to biodiversity seen in ancient Vedic literature. The second chapter describes the view points in Purāṇas and Itihāsas about nature and plant science. Evolution of plants, origin of plants and various usages of plants are also described in this chapter. The third chapter illustrates various aspects of biodiversity based on certain ayurvedic texts and other literary works such as *Carakasamhitā*, *Suśrutasamhitā*, *Bṛhadsamhitā*, *Hārītasamhitā*, *Vṛkṣāyurveda*, *Manusmṛti* and *Arthaśāstra*. The fourth chapter explains about certain aspects of forest and garden making for preserving the biological diversity. The fifth chapter attempts to provide a brief account about Bāṇabhaṭṭa, the poet, his life history and his writings. The sixth chapter illustrates the biodiversity portrayed in *Harṣacarita*. The seventh chapter analyses the account biodiversity as described in *Kādambarī*. The eighth chapter discusses the concept of nature evolved through ages in India and its present status. The importance of nature as understood and treated by the ancient Indian writers, especially Bāṇabhaṭṭa is discussed in this chapter.

I express my hearty indebtedness to Dr. T.K. Narayanan for his proper guidance and timely suggestions. Specially thanks are due to

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**Vrinda Venugopal**



# CHAPTER I

## THE CONCEPT OF BIODIVERSITY IN VEDIC LITERATURE

### INTRODUCTION

Biodiversity is the variety of living beings that existed on the earth, such as various plants, animals, birds, insects, micro-organisms etc. It was Walter. G. Rosen who introduced the term "biodiversity" for the first time as a short form of biological diversity, while planning the 1986 National forum on biological diversity organized by the National Research Council (NRC) and later it has appeared in a publication in 1988. E. Wilson a socio biologist used the term (biodiversity) as a title of the proceedings of the forum.<sup>1</sup>

The concept biodiversity universally accepted at the major United Nations conference held in Rio de Janeiro from 3 to 14 June 1992, and the following definition recommended by United Nations environment program (UNEP) and international union for conservation of nature (IUCN).

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<sup>1</sup> *Biodiversity and Conservation*, Joshi P.C. & Namitha Joshy, APH Publishing Corporation, 2009. p.1.

"Biological diversity means the variability among living organisms from all sources including interalia terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species and of ecosystems."<sup>2</sup>

After 1995 this definition was modified and changed in various ways and consequently there are 14 more definitions are currently in existence for the term. Presently it is defined as "the intrinsically inbuilt plus the externally imposed variability and among living organisms existing in terrestrial marine and other ecosystem at a specific period time."<sup>3</sup>

Biodiversity is commonly considered at three levels:

- 1) Genetic diversity.
- 2) Species diversity
- 3) Ecosystem diversity

#### **(1) Genetic diversity**

Biodiversity at the genetic level represents the diversity of genes. Genes are the biochemical package passed on by parents that determines

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<sup>2</sup> *Idem*

<sup>3</sup> *Ibid.* p. 2.

the Physics and biochemical characteristics of their offspring. most of the genes are the same, even though subtle variations occur in some genes such as size, colour, or any of the peculiarities, perhaps it may be invisible such as susceptibility to diseases'.<sup>4</sup>

## **(2) Species diversity**

A group of organisms which are genetically significantly similar so that they can interbreed and produce fertile offspring are called a species. They are basically different in appearance, but sometimes the differences are extremely subtle. Species diversity is relatively described on the basis of total number of species within the discrete geographical boundaries. This type of biodiversity helps to perpetuate mutual interactions and genetical characteristics of each living beings including each community and ecosystem.<sup>5</sup>

## **Ecological biodiversity**

The diversity existing among various ecosystem in a region constitutes the ecosystem biodiversity. Ecosystem is the harmonious interdependence of man, nature and other living beings. Functional

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<sup>4</sup> *Ibid.*, p.3.

<sup>5</sup> *Idem.*

relationship within their environment are frequently complex, but they are the mechanisms of major ecological processes such as water cycle, soil formation, nutrient cycling and gene flow. These processes provide the sustenance required by living communities and as a result a critical and peculiar inter-dependence among them takes place. Forests, grasslands, mountains, deserts, mangroves water reservoirs, oceans are the examples of such an ecosystem.

For proper study, conservation and protection of lands and reservoirs are classified into certain biomes. This classification is based on their geography and climate. Mainly there are eight types of biomes which are further divided into 227 special types.<sup>6</sup>

#### Eight types of Biomes<sup>7</sup>

1. Nearctic
2. Palearctic
3. Afrotropic
4. Indo malaya
5. Oceanic
6. Australasian

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<sup>6</sup> *Jaivavyvidhim, Jeevan, Jeevitham* (Mal.), Dr. Balakrishnan Cheroope, Kerala Sastra Sahithya Parishath (ed.), 2010. p. 27.

<sup>7</sup> *Idem*

7. Antarctic
8. Neotropic

Western ghat is the most important centre of biodiversity in India included into Indo-Malacian biomes which include 27 other important centers. Coastal areas and reservoirs of water are classified into four.

1. Open ocean
2. Costal margin
3. Marginal seas
4. Marginal archipelagos<sup>8</sup>

A biome is a formation of plants and animals that have common characteristics due to similar climates and can be found over a range of continent biomes which are distinct from habitats because any biome can comprise a variety of habitats. Biodiversity occur in all habitats because genetic diversity allow life to adapt the even to the harshest of environments. Yet species are not spread equally in some areas. Some habitats have a greater number of species such as tropical forests which have a great number of species, even though this region cover only 7% of earths land surface but it is estimated to contain at least 50% of all species

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<sup>8</sup> *Jaivavyvidhyam* (ed.), Kerala Bhasha Institute, March, 2000. p.27

equally<sup>9</sup> important but they are being depleted faster than any other ecological zone. Tropical biota seems to have been unduly prone to extinction. But the remnant forest refugia usually contained sufficient stock of surviving species. The most important recognition is that a very small number of countries situated mainly in the tropics, possess a large account of the world species diversity and they listed by the term of "Mega diversity countries". On the basis of special international attention, Mc. Neel used to count the species list of vertebrates, swallow tail butterflies and higher plants to identify 12 such mega diversity countries.<sup>10</sup>

## **12. Mega Biodiversity Countries**

1. Mexico
2. Colombia
3. Ecuador
4. Peru
5. Brazil
6. Zaire
7. Madagaskar
8. China
9. Indonesia

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<sup>9</sup> *Op cit*, p. 7.

<sup>10</sup> *Ibid.*, p. 18.

10. Malaysia
11. India
12. Australia

### **Hot Spots**

Tropical forest includes the most endemic species of vascular plants, mammals and birds in the world. Yet at the same time tropical region seems to have been unduly prone to extinction. Such regions are indicated as hot spots.<sup>11</sup>

It was Norman Myers described or denoted about the concept in two articles in the environmentalists. "Earths biologically Richest and most endangered Terrestrial Ecoregions are calls as hot spots two distinct criteria considered as to qualify a biodiversity hot spot on myres 2000 edition of the hot spot map the region must contain at least 0.5% or 1,500 species of vascular plants as endemics and it has to lost at least 70% of its primary vegetation. Mainly there are 34 regions comes under this consideration with nine other possible candidates. These regions includes mostly 60% of the worlds plants, mammals, birds, reptiles and amphibian species, with a huge quantity of endemic species.

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<sup>11</sup> *Ibid.*, p. 13.

## List of Hot Spots

1. North and Central America
2. The Caribbean
3. South America
4. Europe
5. Africa
6. Central Asia
7. South Asia
8. South East Asia
9. Asia Pacific
10. East Asia
11. West Asia

Study of fossil records signifies that majority of early originated species are now extinct. Extinction means the complete disappearance of all individuals of a species without producing progeny. Increased population environmental uncertainty, natural catastrophes are the major cause of this extinction, definitely our enquire will reach along with the idiotic activities of humanities various agents responsible for decline in biodiversity are classified into four such as<sup>12</sup>

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<sup>12</sup> *Ibid.*, p. 16.



1. Over Kill
2. Habitat destruction and fragmentation
3. Impact of introduced species
4. Chains of extinction

From the above statement, it is necessary to check our dealings with nature, because whole multitude of living beings indivisibly interrelated to each other. This inter relationship helps to remain natural stability, if any disturbance in one species give rise to imbalance in one species give rise to imbalance in the other species, they signify degradation in the environment, which may threat our own existence. Biodiversity helps to maintain human survival through not only health, food and industry but also fundamental, social, ethical, cultural and economic values of biological diversity have been recognize in most of the human disciplines, from religion to science.

On the basis of a mega diversity country we scrutinize the extensive knowledge of India regarding nature. At that time we could realize that the life of ancient Indians were indivisibly interrelated with nature and they were wandering looked for a comfort place to live and take care of their cattle's. The wide basin of induce river had become their refuge.

While wandering along the way of dense forest their ultimate aim was only better means of subsistence and existence confirmed mind and strong healthy was only their capita with their keen observation and innocent concentration of mind they spontaneously analyzed certain valuable knowledge, from numerous clear and distinct phenomena's of nature. These pure knowledge were further evolved as four vedas.

Ancient Indians properly protected and maintained natural resources because they were very much aware about the importance of nature in their daily life. Besides that they established certain nature personifying certain features of nature as deities. The deities thus worshipped were *Agni*, *Varuṇa*, *Sūrya*, *Mitra*, *Savita*, *Pūsah*, *Viṣṇu*, *Aśvina*, *Uṣas*, *Indra*, *Rudra*, *Maruth* (God of Rain and Wind) *Vāyu* etc. The seven rivers *Sindhu*, *Vipāsa*, *Śatadri*, *Sarasvatī*, *Vitasta*, *Paruṣṇi* were also worshipped by them as gods.

They considered *Sūrya* as the visible God, strong burning globe, the child of heaven, who roaming around the universe informed the differentia of virtues and wickedness of men to the God *Aditi*.<sup>13</sup>

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<sup>13</sup> *R̥gveda* (ed.), Vishveshvaranand Vedic Research Institute, I. 47.p. 484

Ancient people believed and worshiped nature because of their awareness of mutual interdependence of nature and human beings.

The Vedic people had clear knowledge about the importance and necessity of dense forests, the store house of biodiversity, which ensures the existence of the life of all living beings on earth. They are the primary sources of natural food and shelter and play an important role in both ecological and pollution control, besides that they help in getting timely rain<sup>14</sup>. Considerable period of the life of an ancient Indians were associated with forest because at that time of the last phase of life, that is, *Vānaprastha* and *Sannyāsa* they preferred a lonely life in the forest as it was customary in ancient India to take shelter in the forest after completion of the first two stages of the life.<sup>15</sup> There are mention about this concept in ancient works like *Vāmanapurāna*<sup>16</sup>, *Bodhāyanadharmasūtra*<sup>17</sup> etc. *Atharvaveda*<sup>18</sup>, *Rgveda*<sup>19</sup>, *Śivatatvaratnākara* etc.<sup>20</sup> signifies the importance of the protection of forest. Importance of Gardens and forest and their preference are also mentioned in various

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<sup>14</sup> *Rgveda*, Vishveshvaranand Vedic Research Institute, 1964, v. 11, 120.

<sup>15</sup> *Kūrmapurāna* (ed.), Asiatic Society of Bengal, 1890, III, v.2, pp.308.

<sup>16</sup> *Vāmanapurāna*, (ed.), Nag Publishers, 1983, XIV, vv. 110-113, pp.319,

<sup>17</sup> *Bodhāyana dharmasūtra* II. v.14. p. 97.

<sup>18</sup> *Atharvaveda* XII, v. 1., p. 539.

<sup>19</sup> *Rgveda* X. v.5., p. 370

<sup>20</sup> *Śivatatwaratnakara*, VI. vv. 42-43., p. 321.

Sanskrit texts like *Śārangadharapadhati*<sup>21</sup>. According to ancient Indians, evolution of life starts from plants, certain purānic texts like *Viṣṇupurāṇa* there are clear mention about this which states that "the *Ātmā* first takes birth twenty lakh times in different plants, nine lakh times as different aquatic animal eleven lakh times as worms or insects, ten lakh times as different aerial animals thirty lakh times as animals, four lakh times as monkeys and then lastly take birth as a man."<sup>22</sup> Even at the vedic age contains such topics of discussions which says that animals were created three yugas latter than plants according to *Taittirīya Upaniṣad*<sup>23</sup>, *Chāndogyopaniṣad*<sup>24</sup>, *Kaṭhōpaniṣad*,<sup>25</sup> *Viṣṇudharmotharopaniṣad*<sup>26</sup>, *Atharvaṇopaniṣad*<sup>27</sup> plants originated in 107 places under 107 different names.<sup>28</sup> According to *Vāyupurāṇa* there were fourteen types of village plants and forest plants create by *Brahma*<sup>29</sup>.

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<sup>21</sup> *Śārangadhara padhabi*, LXLII. vv. 1-2, p.323.

<sup>22</sup> *Viṣṇupurāṇa*, I. v. 6., p.10.

<sup>23</sup> *Taittiriya Upaniṣad.*, II.v.1.p. 293

<sup>24</sup> *Chāndogya Upaniṣad* VI. v.4, p. 419.

<sup>25</sup> *Kaṭhōpaniṣad* I, v.5., p.11.

<sup>26</sup> *Viṣṇudharmathanopanisad*, CCLXLII, v.4., p. 271.

<sup>27</sup> *Atharvaṇopaniṣad*. I, v. 7, p. 272.

<sup>28</sup> *Vāyupurāṇa* VIII, p.286.

<sup>29</sup> *Ibid.* u. I, vv. 330-333 p. 14.

When these plants vanished on the earth *Brahma* entrusted its cultivation and propagation to a particular community. According to *Vāyupurāṇa*, *Garuḍa* and *Ira* had three daughters by name *lata*, *Vallī* and *Vīrudha*. They were mothers of *Vanaspati*, *Vṛkṣha* and *Vīrudha*. The first daughter *lata* gave birth to *Vanaspati*, the second daughter *valli* delivered *Gulma* and third daughter *vīrudha* delivered *Tr̥ṇa*.

According to *Kūrmapurāṇa* *Vṛkṣha* and *Vīrudha* were created by *Brahma*.<sup>30</sup> *Oṣadhi* plants originated from the dermal spores of *Brahma*. Besides that *Padma* originated from the navel of *Narāyaṇa*, *Matsyapurāṇa* too narrates the sacred origin of plant which says that plants originated from the chest of God *Viṣṇu*.<sup>31</sup> *Vāmanapurāṇa* describes certain plants and plant group based on their origin from different Gods.<sup>32</sup>

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<sup>30</sup> *Kūrmapurāṇa* VII. v. 31., p. 35.

<sup>31</sup> *Mathyapurāṇa* LX. vv. 5-9, p. 258.

<sup>32</sup> *Panchamukhi. A. R. (ed.) Socio Economic ideas in ancient Indian Literature, Rṣtreeyasamskrith samithi, 1998. p. 261.*

	Name of the Plant	Originated from	Ref.
1	Oṣadhi	The dermal hairs of supreme God	87 - 29
2	Padma	The navel of prajapati	17 - 1
3	Kadamba	The palm of Kandarpa	17 - 2
4	Vata	The hand of Manibhadra, Yakshaleader	17 - 3
5	Dhattūra	The heart of Maheswara	17 - 4
6	Khadira	The mid region of Brahma's body	17 - 435
7	Kandaki	The limbs of Viswakarma	17 - 435
8	Kunda	The palm of Girija	17 - 6
9	Sindhuvira	The abdomen of Ganadhira	17 - 6
10	Palāśa	The right side of Yama's body	17 - 7
11	Kṛṇṇaudumbara	Rudra	17 - 7
12	Bandhujīva	Skanda	17 - 8
13	Aswattha	Ravi	17 - 8
14	Śami	Katyayani	17 - 8
15	Bilva	The palm of lakshmi	17 - 8
16	Śarastamba	The mouth of Nagas	17 - 9
17	Durva- black shrink	The tail and back of Vasuki	17 - 9
18	Haritachandana	The heart of sadhyas	17 - 10

Plants associated with the Earth. Sky, Water, Air, Fire and Earth are the five primary elements. Each, element has its specific primary

quality along with other characteristic qualities of the five substances. So the plants are known as *Pañchabhautika*)<sup>33</sup>

Ancient Indians had thorough knowledge about the whole Phenomena of plants. They elucidate a clear picture of plant science with almost all kind of peculiarities of plants such as their classifications, external and internal structures of plant organs, functional and structural mechanisms, propagation etc.

Vedic people accepted certain classification methods to identify plants without any confusion. They classified plants based on their shapes, similarities and contradictions, colour, etc. ***Rgveda*** classifies plants into four types such as:-

1. Flowering
2. Non flowering
3. Fructiferous
4. Non fructiferous<sup>34</sup>

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<sup>33</sup> *Ibid* p. 347.

<sup>34</sup> *Rgveda* X. v. 15., p. 347.

The *Yajurveda* classifies plants into four categories:

1. Without flowers (Gyptogama)
2. With flowers (Phanavogama)
3. Without fruits (Gymnosperma)
4. With fruits (Angeosperms)<sup>35</sup>

The four fold division found in the *Atharvaveda* are:-

1. Which have flowers
2. Which have no flowers
3. Which have fruits
4. Which have no fruits<sup>36</sup>

Later plants were classified into various categories based on some other features also. *Atharvaveda* classifies plants the basis of their colour, shape, peculiarities and characteristics such as *Arunḍhati* is called

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<sup>35</sup> *Yajurveda* XII. 87, p.143

<sup>36</sup> *Atharvaveda* VII. v.27. p. 374.



*Hiraṇyavarṇa*<sup>37</sup> because of its gold colour. Thus based on the colour plants are classified in to seven.

1. *Babhru* (Brown coloured)
2. *Śukra* (White coloured)
3. *Rohiṇi* (Red coloured)
4. *Priśnya* (Spotted plant)
5. *Asikni* (Blue coloured)
6. *Kṛṣṇa* (Black coloured)
7. *Viśākha* (Branch less)<sup>38</sup>

Based on the shapes and appearance plants were again classified into seven:-<sup>39</sup>

1. *Prastrīṇati* (the spreading)
2. *Stambini* (the bushy)
3. *Ekaśringa* (the one-spated)

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<sup>37</sup> *Ibid*, v. 27., p. 400

<sup>38</sup> *Ibid*, VIII., v. 1., p.356

<sup>39</sup> *Ibid*, VIII., v. 10., p. 162

4. *Pratanvati* (the extending)
5. *Anuṣmati* (rich in roots)
6. *Viśākha* (having spreading)
7. *Kāṇḍini* (Jointed)<sup>40</sup>

Herbs are divided into three in the *Atharvaveda* on the basis of their characteristics.<sup>41</sup>

1. *Viṣadūṣaṇi* (Poison destroying)
2. *Bhalāsana* (dispelling)
3. *Kṛtyādūṣaṇi* (witchcraft destroying)

Vedic people had extensive practical knowledge about plant morphology.<sup>42</sup> *Taittirīya Samhita* of *Yajurveda* indicated this concept in its seventh chapter.<sup>43</sup> *Vājasaneyisaṃhita* also mentions about certain plants.<sup>44</sup> *Taittirīya brāhmaṇa* explain that the stem has been classified

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<sup>40</sup> *Ibid*, VIII., v. 4., p. 357

<sup>41</sup> *Ibid*, VIII., v. 10., p. 358

<sup>42</sup> *Taittirīyasamhita* VII. v. 3, p. 311.

<sup>43</sup> *Ibid*, VII., vv. 19-20., p. 311

<sup>44</sup> *Vājasaneyisaṃhita*, XXII., v. 28., p. 100

into two parts.<sup>45</sup> Some *upaniṣad* works like *Bṛhadāraṇyakopaniṣad* point out that parts of plants are comparatively similar to those of human beings like softer tissue (*śakra*) inner fibre (*kināta*) inner wood (*dāru*) and pith (*majja*) contained in the wood as the internal part of a plant.<sup>46</sup>

Human Beings	Tree
<i>Loma</i> (Hairs)	<i>Paṇa</i>
<i>Tvak</i> (skin)	<i>Bāhya Tvak</i> (Outer bark)
<i>Rudhira</i> (Blood)	<i>Rasa</i> (Sap)
<i>Mansa</i> (Flesh)	<i>sakra</i> (Softer Tissue)
<i>Snava</i> (nerves)	<i>Kinata</i> (inner Fiber)
<i>Asthi</i> (bones)	<i>Daru</i> (Inner wood)
<i>Majja</i> (Marrow)	<i>Majja</i> (pith)

Thus it is said that there are seven essential ingredients in the plant body also as in the human body,<sup>47</sup> such as *Rasa*, *Aṣṭk*, *Māṃsa*, *medas*, *Asthi*, *Mañā*, *Śukra* etc. These are clear evidence to prove that the *vedic* people had clear knowledge about the internal structure of plants.

Besides these morphological study of plants, ancient people well realized the fact that plants have internal consciousness. *Atharvaveda*

<sup>45</sup> *Taittiriya Brahmana* III, v. 7., p. 940.

<sup>46</sup> *Bṛhadāraṇyakopaniṣad*. IX, v. 28., p. 308.

<sup>47</sup> *Idem*

agree with this concept and mentioned some words like *jīvalā*, *jīvanṭhim*, *praṣṭṛṇti*, *praṭana avati*, *visākha*, *rohanti* and *puruṣajīvani* . From their hymns we could realize that they had clear idea about plant physiology. These kind of words were used by them not only denote both the existence of life in plant but also to show their usefulness.<sup>48</sup> *Yajurvedasamhita* considered cutting of plants as a great sin and prevented others from such actions.<sup>49</sup> *Chandogyopaniṣad* signifies that the life and death of plants are similar to that of human beings.<sup>50</sup> *Rgveda* agree with this concept through certain hymns.<sup>51</sup>

Ancient Indians were conversant about the agronomy of plants. Because agriculture was their main source of income and livelihood, Vedic people had extensive practical knowledge in Agriculture.<sup>52</sup> They were very much concerned about the nature of the soil and its relation to the production of a particular crop of economic importance. Hence they clearly signifies four main agricultural operations viz.,<sup>53</sup> ploughing<sup>54</sup>,

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<sup>48</sup> *Atharvaveda* VIII.v.4., p. 357

<sup>49</sup> *Yajurvedasamhita.*, XII., p. 133

<sup>50</sup> *Chandogyopanisad* VII. v. 12., pp. 460-461

<sup>51</sup> *Rgveda*, X.v. 3. p. 574

<sup>52</sup> *Ibid.* v. 13., p. 575

<sup>53</sup> *Satapata brāhmaṇa* III, v.6, p. 10.

<sup>54</sup> *Rgveda* III. v. 176, p. 344.

sowing<sup>55</sup>, reaping<sup>56</sup>, and threshing<sup>57</sup>. Certain Hymns of the *Rgveda* points out to the existence of fields divided according to their nature and the quality of the soil.<sup>58</sup> The fields or plough lane was commonly denoted as *Ūrvara* or *Kshetra*.<sup>59</sup> Such divided fields are mentioned in both *Rgveda*<sup>60</sup>, and *Atharvaveda*<sup>61</sup> texts. They classified land in to two types of viz.,

1. *Apnasvati*<sup>62</sup> (fertile)
2. *Ārtana*<sup>63</sup> (waste)

There are mention about ploughing in various ancient texts such as *Atharvaveda*<sup>64</sup>, *Taittiriya Samhita*<sup>65</sup>, *Maitrāyaṇi Samhita*<sup>66</sup>, *Vājasaneyi Samhita*<sup>67</sup>, *Śatapatha Brahmana*,<sup>68</sup> and *Taittiriya Brāhmaṇa*.<sup>69</sup> The

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<sup>55</sup> *Idem*

<sup>56</sup> *Idem*

<sup>57</sup> *Idem*

<sup>58</sup> *Rgveda* III, v. 6., p. 247.

<sup>59</sup> *Ibid* IV, v.2., p. 606

<sup>60</sup> *Ibid* III, v.6., p.247

<sup>61</sup> *Ibid* I, v.6., p.46

<sup>62</sup> *Ibid* III, v.7., p.354

<sup>63</sup> *Ibid* I, v.179., p.364

<sup>64</sup> *Atharvaveda* II, v.4., p.52

<sup>65</sup> *Taittiriyasamhita* VII, v.1., p. 291

<sup>66</sup> *Mantrāyaṇi Samhita* I, v.2, p.115

<sup>67</sup> *Vājasaneyisamhita*, XXII., v.6., p. 55

<sup>68</sup> *Satapathasamihita* VI., v.2., pp. 1030-1036

<sup>69</sup> *Taittiriya Brahmana* III, v.1., p.877

word plough derived from the root *Kṛṣ* meaning "to plough".<sup>70</sup> While *Atharvaveda* introduced *Prthivainya*<sup>71</sup> with the origin of ploughing, *Lāngala*<sup>72</sup> is the most popular word used to denote plough in the vedic literature. *Toda*, *Tsara*<sup>73</sup>, *Sīta*<sup>74</sup>, *Śīra*<sup>75</sup>, *Phāla*<sup>76</sup> and *Sīla* are the other words used for the plough in an ancient times. From these *Śīra* must have been very big and heavy as it was drawn by six, or eight<sup>77</sup> oxen. Besides that *Aṣṭrā* or *Tottra* (goat) was used to guide the ox.<sup>78</sup>

Ancient Indians indicates two types of farming (1) Arable farming (2) Stock farming.<sup>79</sup> They gave equal importance to both types of farming. Hymns of *R̥gveda*<sup>80</sup> clearly mentions the importance attached to arable farming, crop husbandry with different types of wild grass for food and fodder useful for the dual purpose of man and animal.<sup>81</sup>

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<sup>70</sup> *R̥gveda* I- v.23., p. 182

<sup>71</sup> *Ibid.*, v.4., p.607

<sup>72</sup> *Atharvaveda* IV, v.7., p.608

<sup>73</sup> *R̥gveda* IV, v. 7., p. 64

<sup>74</sup> *Ibid.*, v. 7., p. 608.

<sup>75</sup> *Ibid.*, v.5., p. 931

<sup>76</sup> *Ibid.*, v. 5., p. 931

<sup>77</sup> *Taittirīya Samhita* I, v. 8., p. 1.

<sup>78</sup> *R̥gveda* IV, v. 4., p. 931

<sup>79</sup> *Ibid.*, v. 57., p. 609

<sup>80</sup> *Ibid.*, X., v. 9., p. 786

<sup>81</sup> Agriculture in Ancient India, Indian Council of Agricultural Research, 1964. p. 82.

Ancient Indians had knowledge about distinct fertilizers suitable for good crop production. They realized the fact that fertility of soil depends upon various techniques, such as usages of proper manures, irrigation, preservation and usage of different kinds of seeds suitable for different soil and different seasons. Hence, they adopt certain methods to improve soil fertility in order to get better crop production. Śakṛt (animal waste) and *Karīṣa* (dried cow dung) are the major manures used by the vedic people. Among these *Karīṣa* was considered better or more suitable than Śakṛt. *Atharvaveda* clarifies this fact in its third chapter.<sup>82</sup> For better crop production they apply the method of "rotation of crops". *R̥gveda*<sup>83</sup> shows the crops were grown in the same field by rotation and its system of fallowing was also known. *Yajurveda*<sup>84</sup> mentions the same methods. *Taittirīya Samhita*<sup>85</sup> suggested that the rice was sown in summer and pulses in winter on the same ground. Besides that they had frequently referred about the practice of channel irrigation.<sup>86</sup> Wheat and barley were the most common grains of early Indians. *Yajurveda*<sup>87</sup>,

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<sup>82</sup> *Atharvaveda* III, v. 14. p.62

<sup>83</sup> *R̥gveda* X. v. 2. p.887

<sup>84</sup> *Yajurveda* VIII, v.v. 5. p.77

<sup>85</sup> *Taittirīya Samhita* VI. v. 3. p.638

<sup>86</sup> *R̥gveda* VII. v. 2. p.609

<sup>87</sup> *Yajurveda* XVIII, v. 12. p.223

*Vājasaneyīsamhita*<sup>88</sup>, *Śatapatha Brāhmaṇa*<sup>89</sup> *Bṛhadāraṇyakopaniṣad*<sup>90</sup>

refer these grains.

If we scrutinize the Vedic literature we could realize there was harmonious interdependence of nature with all other living beings around them. Through their keen observation and study ancient Indians developed a clear and thorough knowledge about natural phenomena on the earth and tried to lead a life of harmonious co-operation with nature. Beside that they inherited certain virtues from the pure and unblemished nature and tried to convey these virtues for their next generations.

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<sup>88</sup> *Vājasaneyī samhita* I, v. 9. p.5

<sup>89</sup> *Śatapatha Brāhmaṇa* XII, 7. p.1622

<sup>90</sup> *Bṛhadāraṇyakopaniṣad*. VI, v. 3. p.431



## CHAPTER II

# CONCEPT OF BIODIVERSITY AND CONSERVATION IN PURANAS AND EPIC LITERATURE

The view points of *Purāṇa*'s and *Itihāsa*'s about nature and plant science depends on upon the light or wisdom which were poured by Vedic people. From these pure and unblemished wisdom puranic people developed their knowledge to high position as to that of science. They studied carefully the various aspects of plants, trees and herbs, their medicinal and ecological and domestic values which later developed into plant science and *Āyurveda* for the treatment of humans, animals and plants itself.

### **Evolution of plants**

In its description of evolution of man *Bṛhadviṣṇupurāṇa* states that that the evolution of life starts from plants and ends in man, the *Ātma* firstly take its birth in different plants and lastly becomes a man.

स्थावरे लक्षविंशत्यो जलजं नवलक्षकम् ।  
कृमिजं रुद्रलक्षं च पक्षिजं दशलक्षकम् ॥  
पशवादीनां लक्षत्रिंश च्चतुर्लक्षञ्च वानरे ।  
ततो हि मानुषाः जाताः कुत्सि तादर्विलक्षकम् ॥<sup>1</sup>

Viṣṇudharmotharapurāṇa also holds this concept.<sup>2</sup>

### Origin of plants

Some *puranic* texts claim that the origin of plants and plant groups are from certain divinities. According to *Purāṇas* plants originated on the earth with the appearance of water on the earth. At the initial stage, plants were growing without any cultivation. Such plants were called as *aphālakṛṣṭa* and after such plants vanished from the earth, God Brahma created the system of cultivation and brought this system of cultivation into practice on the earth<sup>3</sup>.

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<sup>1</sup> Panchamukhi A R(ed.) *Socio economic ideas in ancient Indian literature*, Rashtriya Sanskrit Publishes, 1998. p.270.

<sup>2</sup> तश्माद्यावता भाव्यं तृणेष्वपि विपश्चिता ।                      Br̥hadviṣṇupurāṇa  
तृणान्यपि सर्जावानि तेषां कुर्यान्न पीडनम् ॥

*Viṣṇudharmothara Purāṇa*, Nag Publishers, 1985, CCLXLII. v.4, p.429

<sup>3</sup> *Vāyupurāṇa*; pub Nag Publishers year 1983VIII. vv. 123-129, 8, p.27

Initially, two types of plants were identified as:-

1. Grāmya - Which were growing in the fields, gardens etc.
2. Āraṇya - Those growing in the forests<sup>4</sup>

Based on the taste also plants were classified into two types:-

1. Caustic group (*Kaṣāya*)
2. Sweet group (*Madhura*)

Based on their utility plants are classified into two ,viz,

1. Medicinal plants (food plants)
2. Non medicinal plants (Non food plants)

Besides that plants are again classified into six types. They are :-

1. *Vṛkṣa*
2. *Gulma*
3. *Lata*

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<sup>4</sup> Ibid vv. 141-151, p.28

#### 4. Vallī

#### 5. Virudha

#### 6. Tṛṇa<sup>5</sup>

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<sup>5</sup> अपां भूमेश्च संयोगात् ओषध्यस्तासु चाभवन् ।  
पुष्पमूलफलिन्यस्तु ओषध्द्यस्ताः प्रजज्ञिरे ॥  
अफालकृष्टश्चानुप्ता ग्राम्यारप्याश्चतुर्दश ।  
ऋतुपुष्प फलाश्चैव वृक्षा गुल्माश्च जज्ञिरे ॥  
प्रादुर्भावश्च त्रेतायां वार्तायामौषधस्य तु ।  
तेनौषधेन वर्तते प्रजास्त्रेतायुत्रं तदा ॥

ब्रह्मा स्वयम्भू भर्गवान् ज्ञात्वा तासां (प्रज्ञानां) मनीषितम् ॥  
युवतं प्रत्यक्ष दृष्टेन दर्शनेन विचार्य च ।  
ग्रस्ताः पृथिव्याः ओषध्यो ज्ञात्वा प्रत्यदुहत्पुनः ॥  
कृत्वा वत्सं सुमेरुं तु दुदोह पृथिवीमिमाम् ।  
दुग्धेयं गोस्तदा तेन बीजानि पृथिवीतलं ॥  
जज्ञिरे तानि बीजानि ग्राम्यारप्यास्तु ताः पुनः ।  
ओषध्यः फलपाकान्ताः सप्तसप्तदशास्तु ताः ॥  
व्रीहयश्च यवाश्चैव गोधूमा अप्वस्तिलाः ।  
प्रियङ्गवो हयदाराश्च कारुषाश्च सतीनकाः ॥  
माषा मुद्गा मसूराश्च निष्पावाः सकुलत्थिकाः ।  
आढक्यश्चणकाश्चैव सप्तसप्तदशाः स्मृताः ॥  
इत्येता ओषधीनां तु ग्राम्याणां जातयः स्मृताः ।  
ओषध्यो यज्ञियाश्चैव ग्राम्यारप्याश्चतुर्दश ॥  
व्रीहयः सयवाः माषा गोधूमा अणवस्तिलाः ।  
प्रियंगु सप्तमा हयेते अष्टमी तु कुलत्थिका ॥  
शामाका स्वया नीवारा जर्तिलाः सगवेधुकाः ।  
कुरुविन्दा वेणुयवास्तथा कर्मटकाश्च ये ॥  
ग्राम्यारप्याः स्मृता हयेता ओषध्यस्तु चतुर्दश ।  
उत्पन्ना प्रथमा हयेता आदौ त्रेता युगस्य तु ॥  
अफालकृष्टा ओषध्यो ग्राम्यारप्यास्तु सर्वशः ।  
वृक्षगुलमलतावल्ली वीरुधस्तृणजातयः ॥  
मूलैः फलैश्च रोहिष्यो गृहणन् पुष्पैश्च जायते ।  
पृथ्वी दुग्धा तु बीजानि यानि पूर्वं स्वयम्भुवा ॥  
ऋतुपुष्पलास्ता वै ओषध्यो जज्ञिरे त्विह ।  
यदा प्रसृष्टा ओषध्यो न प्ररोहन्ति ताः पुनः ॥  
ततः स तासां वार्तोपायं चकार ह ।  
ब्रह्मा स्वयम्भूर्भगवान् दृष्ट्वा सिद्धिं तु कर्मजाम् ॥

Besides these classification *puranic* people noticed that the plants are sensitive towards various objects which act upon them. For instance it is believed that certain plants like *Aśoka*, and *Bakula* becomes full of blossoms when beautiful women kicked on them<sup>6</sup>.

According to ancient people, there are seven essential ingredients in a plant body identical with that of a human being like Rasa, Asṛk, Māmsa, Medas, Asthi, Mañā and Sukṛam<sup>7</sup> Hence plants are considered as self-manifesting, prone to death or decay, shows the characteristics of sleep, wakefulness, gravity, movements, response to medical treatment, produce

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ततः प्रभृत्यौवध्यः कृष्टपच्चास्तु जज्ञिरे ।  
संसिद्धायां तु वार्तायां ततस्तासां स्वयम्भुवाः ।

मर्यादाः स्थापयामास यथारब्धाः परस्परम् ॥

*Vāyupurāṇa*, VIII. vv. 140 - 154, p. 28.

<sup>6</sup> अशोकवृक्षाः कमलेक्षणानां मनोज्ञपादाम्बुजताडनेन ।  
उल्लासमापुस्साहसा तदानीं तथैव लीलाकमलैर्युवानः

चन्द्रनानां शपुरंक्षणानां कुम्भस्तनीनां कुटिलालकानाम् ।  
विकासिनीनां घृतिमाललम्बे गण्डूषशीधोर्बकुलोडवसेकात् ॥

*Rāghavendravigyaya Mahākāvya*, V, vv. 32 - 34, p.247.

<sup>7</sup> तान् ह्येतैः श्लोकैः पप्रच्छ । यथा वृक्षो वनस्पतिस्तथैव पुरुषोऽमृषा ।  
तस्य लोमानि पर्णानि, त्वगस्योत्पाटिका बहिः त्वच एवास्य रुधिरं  
प्रस्यन्दि त्वच उत्पटः । तस्मात्तदातृणात्प्रेतिरसो वृक्षादिवाहतात्  
मांस्यान्यस्य शर्कराणि कीनाटं स्नावतः स्थिरम् । अस्थीन्यन्तरतो  
दारुणि मज्जा मज्जोपमा कृता यद्बुद्धो वृवणो रोहति मूलान्नवतरः  
पुनः । मर्त्यः स्विन्मृत्युना वृवणः कस्मान्मूलात्प्ररोहति रेतस इति  
मा वोचत जीवतस्तत्रजायते । धानारूह इव वैवृक्षोऽज्जसा प्रेत्य  
संभवः यत्समूलमावृहेयुर्वृक्षं न पुनरा भवेत् ।

*Bṛhadāranyakopaniṣad*, V. 28. p. 308.

seeds, attracted by objects they like and averse to objects they do not like, inclined to growth, injury or bleedings, losing energy etc.<sup>8</sup>

### Various usages of plants

According to ancient Indian Sanskrit literature, the whole multitudes of living beings on this nature are very much depended on upon plant life. They considered plants as a great man always helping others<sup>9</sup>, with their various parts such as leaves, flowers, fruit, shade, roots and skin (bark). Plants helped others, even after death by its wood.<sup>10</sup> *Puranic* people indicates that each plant perform *Pancñayañas* such as:-

1. Giving wood or fuel
2. Shade and shelter
3. Shelters for birds
4. Leaves, roots, barks, fruits and flowers
5. Medicinal components for treatment of illness

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<sup>8</sup> Panchamukhi. A.R., Socio-economic ideas in Ancient Indian Literature, Rashtriya Samskrit Samithi, 1998. p. 267.

<sup>9</sup> छायामन्यस्य कुर्वन्ति तिष्ठन्ति स्वयमातपे ।  
फलान्यपि परार्थाय वृक्षाः सत्पुरुषा इव ॥ Ibid. p. 273.

<sup>10</sup> इन्धनार्थं यथा नीतमग्निहोत्रं तदुच्यते ।  
छायामिवश्रामपथिकैः पक्षिणां निलयेन च ॥  
पत्रमूलत्वगादींश्च औषधार्थं तु देहिनाम् ॥  
उपकुर्वन्ति वृक्षाहि पञ्चयज्ञः स उच्यते ।  
Vāyupurāṇa VIII. vv. 84 - 85. p.25

The *Puranic* literature contains detailed explanations of various usages of plants such as garment making. Various *puranic* works described that certain garments were made from the plants. *Vāyupurāṇa* says that man had produced garments from (cotton, jute, etc.) apart from fruits, ornaments from the plants<sup>11</sup>. *Vāmanapurāṇa* too underlines this fact<sup>12</sup>. *Kūrmapurāṇa* mentions that garments could be made of bark, *muña*, *kuśa* and *paṭṭa* fibres of the plants<sup>13</sup>. Similarly plant materials were used as cosmetics in ancient times. *Vāmanapurāṇa* describes how certain plants like Chandana and Rakta Candana were used as cosmetics<sup>14</sup>. Again there

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- 11 प्रादुर्बभूवुस्तासां च वृक्षास्ते गृहसंस्थिताः ।  
वस्त्राणि च प्रसूयन्ते फलान्याभरणानि च ॥  
*Vāyupurāṇa* VIII. v. 86 , p.26
- 12 सस्नेहानामथोष्णेन तिलकल्केन चाविकम् ।  
कार्पासिकानां वस्त्राणां शुद्धिः स्याद्बहिरम्बुना ॥  
*Vāmanapurāṇa*, XIV, v. 63 - 64. p. 275.
- 13 चीरवासा भवेन्नित्यं स्नाति त्रिषवणं शुचिः ।  
सर्वभूतानुकम्पी स्यात् प्रतिग्रह विवर्जितः ॥  
मौञ्जी त्रिवृत्समा श्लक्षणा कार्या विप्रस्व मेखला ।  
कुशेन निर्मिता विप्रा ग्रन्थिनैकेन वा त्रिभिः ॥  
वसेदविकृतं वासः कार्पासं वा कषायं ।  
तदेव परिधानीयं शुक्लच्छिद्रमुत्तमम् ॥  
कार्पासमुवीतार्थं निर्मितं ब्रह्मणा पुरा ।  
ब्राह्मणानां त्रिवृत्सूत्रं कौशं वा वस्त्रमेव वा ॥  
*Kūrmapurāṇa*, XII, vv. 27 - 30. p. 130.
- 14 तथा दुकूलाम्बरशालिनि त्वं मृगारिचर्माभिवृतस्तु रुद्रः ।  
त्वं चन्दनाक्ता स च भस्मभूषितो न युवतरूपं प्रतिभाति मे त्विदम्  
खट्वाङ्गयोधिनो वीरा रक्तचन्दनभूषिताः ।  
इमे प्राप्ता गणा योद्धुं महाव्रतिन उत्तमाः ॥  
*Vāmanapurāṇa*, LXVII, v.13, p.141

are mention about plants which were used and cultivated for food. They identified plants which could be used as food, the qualities of such food and also some plants which were prohibited as food since they could make adverse effect on human beings if consumed as food. For instance Tāmbūla, Ikṣu are used for religious purposes<sup>15</sup> while some other fruits like Dāḍīma, śrīphala kharjura, kapittha, jambu, āṃra, panasa, kadalī and nārīkela are tasty edible fruits<sup>16</sup>. But fruits like vṛintāka, mūlaka, śīgru, kuṭaka, cāṭaka, palāndu lasuna Nālīkā, Tandulīya, Aśmaṣṭaka, poṭa and kusumbha were prohibited as food items<sup>17</sup>.

15 मधुपर्के च सोमे च ताम्बूलस्य च भक्षणे ।  
फले मूलेक्षुदण्डे च न दोषं प्राह वै मनुः ॥ *Ibid. U. vv. 13. p. 138.*

16 दाडिमानां श्रीफलानामसंख्यानि फलानि च ॥  
खर्जूराणां कपित्थानां जम्बूनां विविधानि च ।  
आम्राणां पनसानां च कदलीनां च नारद ।  
फलानि नारिकेलानामसंख्यानि ददौ मुदा ॥

*Brahmavaivārtha Purāṇa, XIII.*

17 वृन्ताकं भूस्तृणे शिग्रुं कुटकं चटकं तथा ।  
प्राजापत्यं चरेज्जाग्ध्वा खड्गं कुम्भीकमेव च ॥  
पलाण्डुं लशुनं चैव भुवत्वा चान्द्रायणं चरेत् ।  
नालिकां तण्डुलीयं च प्राजापत्येन शुध्यति ॥  
अश्मान्तकं तथा पोतं तप्तकृच्छ्रेण शुध्यति ।  
प्राजापत्येन शुद्धिं स्यात्कुसुम्भस्य च भक्षणे ॥

*Kūmapurāṇa, U. XXXIV, p.142.*



Besides that they noticed that consumption of some plants on certain pecculiar days would create negative (adverse) effects on living beings<sup>18</sup>.

Plants were used in Religious rituals and ceremonies such as shrāddha, or for gaining kingdom or to fullfill one's desires etc. For instance grains like vṝhi, yava, Māṣa were used for shrāddha ceremony<sup>19</sup>. While Palāśa, champaka, Bilva were used to gain power. Pāṭalipuṣhpa and chūtapatra were used to remove fever<sup>20</sup>. Besides that some flowers like

18 प्रतिपत्सु च कूष्माण्डमभक्ष्यं ह्यर्थनाशनम् ।  
द्वितीयायां च बृहती भोजनेन स्मरेद्धरिम् ॥  
अभक्ष्यं च पटोलं च शत्रुवृद्धिकरं परम् ।  
तृतीयायां चतुर्थ्यां च मूलकं धननाशनम् ॥  
कलङ्ककारणं चैव पञ्चम्यां बिल्वभक्षणम् ।  
तिर्यग्योनिं प्रापयेत्तु षष्ठ्यां वै निम्बभक्षणम् ॥  
रोगवृद्धिकरं चैव नराणां तालभक्षणं ।  
सप्तम्यां च तथा तालं शरीरस्य च नाशकम् ।  
नारिकेलफलं भक्ष्यमष्टम्यां बुद्धिनाशनम् ।  
तुम्बी नवम्यां गोमांसं दशम्यां च कलम्बिका ॥  
एकादश्यां तथा शिबी द्वादश्यां पूतिका तथा ।  
त्रयोदश्यां च वार्ताकी न भक्ष्या पुत्रनाशनम् ॥  
चतुर्दश्यां माषभक्ष्यं महा पापकरं परम् ॥

Bṛhmavivarthapurāṇa, XIII. vv. 29 - 35, p.298.

19 व्रीहिभिश्च यवैर्माषैरदूभिर्मूलफलेन वा ।  
श्यामाकैश्च शुभैः शाकैः नीवारैश्च प्रियङ्गुभिः ॥  
गोधूमैश्च तिलैर्मुद्गैर्मांसं प्रीणयते पितृन् ॥

Kūrmapurāṇa, U. vv. 20 - 37, p. 149.

20 बिल्वं राज्याय लक्ष्म्यर्थं पाटलांश्चम्पकानपि ।  
पद्मानि चक्रवर्तित्वे भक्ष्यभोज्यानि सम्पदे ॥  
दूर्वा व्याधिविनाशाय सर्वसत्ववशीकृते ।  
प्रियङ्गु पाटलीपुष्पं चूतपत्रं ज्वरान्तकम् ॥

Agnipurāṇa, VII, p.13.

Arka and *Mandāra* were used to propitiate *Brahma*<sup>21</sup>. Plants were also used as cleaning agents as mentioned in some *purāṇic* works. For instance white mustard and sesame were considered as having cleaning properties and applied to clean precious stones like pearl, coral etc.<sup>22</sup> Beside that husk of white mustered and *srīphala* plants were used for cleansing silk garments<sup>23</sup>.

*Agnipurāṇa* mentions that, during *upanayana*, the staff made of *palāśa* or *pippala* or *Bilva* were used; utensils were made of bamboo stem and leaves of *palāśa* and *āmṛa*. Plants were largely used for making cot, staff, mat, wooden footwear, utensils etc.<sup>24</sup> There are mention about plants

21 सुगन्धैः ब्रह्मा पद्मैश्च पुष्पैर्नीलोष्पलैर्हरिः ।  
अर्कमन्दारधस्तूर कुसुमैरर्च्यते हरः ॥

Ibid. CCII. v. 24. p. 411

22 सर्वेषां मृण्मयानां तु पुनर्दाह उदाहृतः ।  
मणिवज्रप्रवालानां मुक्ताशङ्खमणेस्तथा ॥  
सिद्धार्थकानां कल्केन तिलकल्केन वा पुनः ।  
स्याच्छौचं सर्वसालानामाविकानाञ्च सर्वशः ॥

*Vāyupurāṇa*, XVI, vv. 5 - 54.

23 शुद्धिः संप्रेक्षणाज्ज्ञेया पलालेन्धनयोस्तथा ।  
सिद्धार्थकानां कल्केन शृङ्गादन्तमयस्य च ॥  
श्रीफलैरंशुपट्टानां क्षौमाणां गौरसर्षपैः ।  
शुद्धिं पर्युक्ष्यतोयेन मृगलोम्नां प्रकीर्तिता ॥

*Agnipurāṇa* (trans) Choukhamba Sanskrit Prathisthan 200-9,  
VII. p.13. CCII. p.411.

24 पञ्चगव्यं पलाशादिपुटकं वै समन्ततः ।  
Ibid. vv. 78-41, p. 205.  
वंशादिपात्रे विन्यस्य अस्त्रं च हृदयं ततः ॥

Ibid. LXIII. p. 187.

पर्णपिप्पलबिल्वानां क्रमाद्दण्डाः प्रकीर्तिताः ॥

such as drākṣha, Kharjura, tāla, Ikṣu and nārikela used for the preparation of certain alcoholic drinks<sup>25</sup>

### Importance of plants in Ecological balance

*Puranic* people realized the fact that plants take up the responsibility of maintaining the ecological balance of the surrounding areas of their land. Therefore they tried to protect plants and prevented all types of misuse and unnecessary destruction of plants. In *Vāyupurāṇa* there is an interesting story which reveals the importance of plants in the maintenance of the ecological balance<sup>26</sup>.

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Ibid. CLIII. p. 325.

भवतं कृत्वा चाम्रफटे सकुशे सकुलोबिकाम् ॥

Ibid. CLXLIV. p. 354.

25 प्राणायामशतं कार्यं सर्वपापापनुत्तये ।  
पानकं द्राक्षमधुकं खार्जूरं तालमैक्षवम् ॥  
माध्वीकं टड्कमाध्वीकं मैरेयं नारिकेलजम् ।  
न मद्यान्यपि मद्यानि पैष्ठी मुख्या सुरा स्मृता ॥

Ibid. CLXXIII. vv. 21-22.p. 63.

26 अपां सौक्ष्म्ये प्रतिगते तदा मेघात्मना तु तौ ।  
मेघेभ्यस्तनयित्नुभ्यः प्रवृत्तं वृष्टिसर्जनम् ॥  
सकृदेव तया वृष्ट्या संयुक्ते पृथिवीतले ।  
प्रादुरासंस्तदा तासां वृक्षास्तु गृहसंस्थिताः ॥  
सर्वप्रत्युपभोगस्तु तासां तेभ्यः प्रजायते ।  
वर्तयन्ति हि तेभ्यस्ताः त्रेतायुगमुखे प्रजाः ॥  
ततः कालेन महता तासामेव विपर्ययात् ।  
रागलोभात्मको भावस्तदा ह्याकस्मिको भवत् ॥  
विपर्ययेण तासां तु तेन कालेन भाविना ।  
प्रणश्यन्ति ततः सर्वे वृक्षास्ते गृहसंस्थिताः ॥  
ततस्तेषु प्रणष्टेषु विभ्रान्ता व्याकुलेन्द्रियाः ।

## Plants for medicinal use

According to the opinion of ancient Indians, plants do not originate without having any medicinal properties. Puranic works also noticed the medicinal properties of certain plants. They state that all types of diseases can be removed by the using various plants which are capable of curing such diseases. Besides that some plants have the ability to provide

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अभिधायन्ति तां सिद्धिं सत्याभिधायिनस्तदा ॥  
प्रादुर्बभूवुस्तासां च वृक्षास्ते गृह संस्थिताः ।  
वस्त्राणि च प्रसूयन्ते फलान्याभरणानि च ॥  
तेष्वेव जायते तासां गन्धवर्णरसान्वितम् ।  
अमाक्षिकं महावीर्यं पुटके पुटके मधु ॥  
तेन ता वर्तयन्ति स्म सुखे त्रेतायुगस्य च ।  
हृष्टतुष्टास्तया सिध्या प्रजा वै विगतज्वराः ॥  
पुनः कालान्तरेणैव पुनर्लोभावृतास्तु ताः ।  
वृक्षांस्तान् पर्यगृहणान्त मधु वा माक्षिकं बलात् ॥  
तासां तेनापचारेण पुनर्लोककृतेन वै ।  
प्रणष्टा मधुना सार्धं कल्पवृक्षाः क्वचित् क्वचित् ॥  
तस्यामेवाल्पशिष्टायां सध्याकालवशात्तदा ।  
प्रावर्तन्त तदा तासां द्रव्यान्वभ्युत्थितानि तु ॥  
शीतवातातपैस्तीव्रैः ततस्ताः दुःखिता भृशम् ।  
द्रव्यैस्ता पीड्यमानास्तु चक्रुरावरणानि च ॥  
इतस्तेभ्यो बलायो तु सत्यशीला ह्यर्हिसकाः ।  
वीतलोभा जितात्मानो निवसन्ति स्म तेषु वै ॥  
प्रतिगृह्णन्ति कुर्वन्ति तेभ्यश्चान्ये/ल्पतेजसः ।  
एवं विप्रतिपन्नेषु प्रपन्नेषु परस्परम् ॥  
तेन दोषेण तेषां ता ओषध्यो मिषतां तदा ।  
प्रणष्टा ह्यियमाणा वै मुष्टिभ्यो शिकता यथा ॥  
अग्रसद्भूर्युत्रबलात् ग्राम्यारण्या श्चतुर्दश ।  
फलं गृह्णान्ति पुष्पेश्च पुष्पं पत्रेश्च याः पुनः ॥  
ततस्तासु प्रणष्टासु बिभ्रान्तास्ताः प्रजास्तदा ।  
स्यम्भुवं प्रभुं जग्मुः क्षुधाविष्टाः प्रजापतिम् ॥

*Vāyupurāṇa*, CLXXIII, p. 63.

permanent youthfulness, vitality and long life. Vāyupurāṇa claims that by regular consumption of fruit juices like panas, kalāmṛa, nyagrōdha, likuca, jampu. etc. one can lead a youthful life up to 10,000 years<sup>27</sup>.

Matsyapurāṇa refers about almost 85 plants as of great medicinal value and includes some instructions for maintaining health. Accordingly, a person who follows certain dictum regains life even after being hit by a weapon<sup>28</sup>. There are mentions about some poisonous herbs which are

<sup>27</sup> तत्र दिव्यो महावृक्षः पनसः षट्साश्रयः।  
ईश्वरो ब्रह्मणः पुत्रः कामचारि मनोजवः॥  
तस्य पीत्वा फलरसं जीवन्ति है समायुतम्॥

Ibid, XLIII, v.4, p.135

दशवर्षसहस्राणि तेषामायुर्निरामयं।  
कालाम्नस्य रसं पीत्वा सर्वदा स्थिरयौवनाः॥ Ibid, v.9  
तत्रापि सुमहान् दिव्यो न्यग्रो धो रोहिणो महान्।  
तस्य पीत्वा फलरसं पिबन्तो वर्तयन्त्युत॥  
दशवर्षसहस्राणि शतानि दश पञ्च च।  
जीवन्ति ते महामात्रा सद हृष्टा नरोत्तमाः॥ Ibid, XLV, vv.4-5

1. तस्मिन्वर्षे महावृक्षो लिकुचः षट्साश्रयः।  
तस्य पीत्वा फलरसं तत्र जीवन्ति मानवाः Ibid, v.9
2. मेरुं प्रदक्षिणीकृत्य जम्बूवृक्षं विशत्यधः  
ते पिबन्ति सदा हृष्टा जंबूरसफलावृताः॥  
जम्बूरसफलं पीत्वा न जरां प्रानुवन्ति ते।  
न च ध्रुवं न रोगं तु न च मृत्युं तथाविधम्॥

Ibid, XLVI, p. 135.

<sup>28</sup> एकवीरमहौषध्यः शृणु चातः परं नृप॥  
वन्ध्या कर्कोटकी राजन्विष्णुक्रान्ता तथोत्कटा।  
शतमूली सितानन्दा बला मोचा पटोलिका॥  
सोमपिण्डा निशा चैव तथा दग्धरूहा च या।  
स्थले कमलिनी या च विशाली शङ्खवमूलिका॥  
चण्डाली हस्तिमगधा गो/जापर्णी करम्बिका।  
रक्ता चैव महारक्ता तथा बर्हिशिखा च या॥  
कोशातकी नक्तमालं प्रियालं च सुलोचनी।

powerful of killing living beings and also some herbs which could be applied as antidotes for poisoning.<sup>29</sup> In Kūrmapurāṇa there are reference

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वारुणी वसुगन्धा च तथा वै गन्धनाकुली ।।  
ईश्वरी शिवगन्धा च श्यामला वंशनालिका ।  
जतुकाली महाश्वेता श्वेता चा मधुयष्टिका ।  
वज्रकः पारिभद्रश्च तथा वै सिन्धुवारकाः ।  
जीवानन्दा वसुच्छिद्रा नतनागरकण्टका ।।  
नालं च जाली जाती च तथा च वटपत्रिका ।  
कार्तस्वरं महानीला कुन्दुरुहसपादिका ।।  
मण्डूकपर्णी वाराही द्वे तथा तण्डुलीयके ।  
सर्पाक्षि लवली ब्राह्मी विश्वरूपा सुखाकरा ।।  
रुजापहा वृद्धिकरी तथा चैव तु शल्यदा ।  
पत्रिका रोहिणी चैव रक्तमाला महोषधी ।।  
तथामलकवन्दाकं श्यामचित्रफला च या ।  
काकोली क्षीरकाकोली पीलुपर्णी तथैव च ।।  
केशिनी वृश्चिकाली च महानागा शतावरी ।  
गरुडी च तथा वेगा जले कुमुदिनी तथा ।।  
स्थले चोत्पलिनी या च महाभूमिलता च या ।  
उन्मादिनी सोमराजी सर्वरत्नानि पार्थिव ।।

*Ibid.* vv. 22-34. p. 816.

- 29 लाक्षा प्रियङ्गुमञ्जिष्ठा सममेला हरेणुका ।  
यष्ट्याह्वा मधुरा चैव बभ्रुपित्तेन कल्पिताः ।।  
निखनेद् गोविषाणस्थं सप्तरात्रं महीतले ।  
ततः कृत्वा मणिं हेम्ना बद्धं हस्तेन धारयेत् ।।  
संसृष्टं सविषं तेन सद्यो भवति निर्विषम् ।  
मनोहव्या शमीपत्रं तुम्बिका श्वेतसर्षपाः ।।  
कपित्थकुण्टमञ्जिष्ठापित्तेन श्लक्ष्णकल्पिताः ।  
शूनो गोः कपिलायाश्च सौम्याक्षिप्तो/पिरोगदः ।।  
विषजित्परमं कार्यं मणिरत्नं च पूर्ववत् ।  
मूषिका जतुका चापि हस्ते बद्धा विषापहा ।।

*Ibid.* CCXVIII. vv. 6 - 10.p.813

to certain plants which are used for brushing<sup>30</sup>. The medicinal effect of certain plants as referred in the Puranas are as follows:-<sup>31</sup>

Serial No.	Name of <i>varśa</i>	Name of fruit or juice taken	Life span years	Other Benefits
1.	Ketumala	Panasa	10000	Skin colour of male is black while that of female is greenish black
2.	<i>Bhadraśva</i>	<i>Āmra</i>	10000	Males are white female are pleasing like the moon
3.	<i>Ramyāka</i>	<i>Nyagrodha</i>	11000	People are white skinned and noble
4.	<i>Hiraṇmaya</i>	<i>Śrīphala</i>	12000/11500	Golden coloured
5.	<i>Kiṃpuruṣa</i>	<i>Plakṣa</i>	10000	Golden coloured
6.	<i>Harivarṣa</i>	<i>Ikṣu</i>	10000	White coloured
7.	<i>Avṛta</i>	<i>Jambū</i>	13000	Colour of the skin is like that of Lotus

<sup>30</sup> आचम्य प्रयतो नित्यं स्नानं प्रातः समाचरेत् ।  
मध्याङ्गुलिसमस्थैल्यं द्वादशाङ्गुलसम्मितम् ॥  
सत्वचं दन्तकाष्ठं स्यात्तदग्रेण तु धारयेत् ।  
क्षीरवृक्षसमुद्भूतं मालतीसम्भवं शुभम् ॥  
अपामार्गं च बिल्वं च करवीरं विशेषतः ॥  
वर्जयित्वा निन्दितानि गृहीत्वैकं यथोदितम् ।  
परिहृत्य दिनं पापं भक्षयेद्वै विधानवित् ॥

*Kūrmapurāṇa*, U. XVIII, VV.18-20

<sup>31</sup> केतुमाले नराः काकाः सर्वे पनसभोजनाः ।  
स्त्रियश्चोत्पलपत्राभास्ते जीवन्ति वर्षायुतम् ॥  
भद्राश्वे पुरुषाः शुक्लाः स्त्रियश्चन्द्रांशुसन्निभाः ।  
दशवर्षसहस्राणि जीवन्ते चान्नभोजनाः ॥  
जीवन्ति चैव सत्वस्था न्यग्रोधफलभोजनाः ।  
हिरण्ये हिरण्याभाः सर्वे श्रीफलभोजनाः ॥  
एकादशसहस्राणि शतानि दश पञ्च च ।  
जीवन्ति पुरुषा नार्यो देवलोकस्थिता इव ॥  
तथा च किम्पुरुषे विप्रा मानवा हेमसन्निभाः ।  
दशवर्षसहस्राणि जीवन्ति प्लक्षभोजनाः ॥  
तथा च हरिवर्षे तु महारजतसन्निभाः ।  
दशवर्षसहस्राणि जीवन्तीक्षुरसाशिनः ॥  
इलावृते पद्मवर्णा जम्बूरसफलाशिनः ।  
त्रयोदशसहस्राणि वर्षाणां च स्थिरायुषः ॥

*Ibid.*, XLVII, vv.1-10

*Vāmanapurāṇa* deals with certain nutritious plants which helped to remove *vāta* or *vāyu*. For instance coconut water, *Tila* oil, *Kharjura*, *Āmalakī* juice and smearing of *chandana* paste throughout the body had the ability to reduce *vāta*. Similarly some plants are used as the remedy for ailments due to phlegm (*kapha*)<sup>32</sup>. *Brahmavaivarthapurāṇa* enumerates certain informations about *Tridoṣas*; *vāta*, *pitta* and *kapha*. And prescribe certain methods to eliminate the *Tridoṣa*'s<sup>33</sup>. Mensionis also made about

32

*vāta*

पक्वतैलविशेषं च तिलतैलं च केवलम् ।  
लाङ्गलीतालरवर्जुरमुष्णमामलकीद्रवम् ॥  
शीतलोष्णोदकस्नानं सुस्निग्ध चन्दनद्रवम् ।  
स्निग्धपद्मपत्रतल्पं सुस्निग्धव्यजनानि च ॥  
एतते कथितं वत्से सद्यो वायुप्रणाशनम् ।  
वायवस्त्रिविधाः पुंसा क्लेशसन्तापकामजाः ॥

*Kapha* (phlegm)

भोजनानन्तरं स्नानं जलपानं विना तृषा ।  
तिलतैलं स्निग्धतैलं स्निग्धमामलकीद्रवम् ॥  
पर्युषितान्नं तक्रं च पक्वं रम्भाफलं दधि ।  
मेघाम्बु शर्करातोयं सुस्निग्धजलसेवनम् ॥  
नारिकेलोदकं रुक्षस्नानं पर्युषिते जले ।  
तरुगुञ्जापक्वफलं सुपक्वं कर्कटीफलम् ॥  
ख्रातस्नानं च वर्षासु मूलकं श्लेष्मकारकम् ।  
ब्रह्मरन्ध्रे च तज्जन्म महद्द्वीर्यविनाशनम् ॥

*Vāmanapurāṇa*, *Brhmakhaṇṭa*, XVI, vv. 64-79. p.289

33

(*Vāta*)

पक्वं रम्भाफलं चैव सबीजं शर्करोदकम् ।  
नारीकेलोदकं चैव सद्यस्तक्रं सुपिष्टकम् ॥  
माहिषं दधि मिष्टं च केवलं वा सशर्करम् ॥  
सद्यः पर्युषितान्नं च सौवीरं शीतलोदकम् ॥

*Pitta*

ज्वरस्य सर्वरोगाणां जनकः कथितः सति ।  
पित्तश्लेष्मसमीराश्च ज्वरस्य जनकास्रयः ॥



some plants used for brushing the teeth while the use of some other plants are prohibited for brushing the teeth. Reference is also made about some plants like Tāmbūla having the ability to cure paralysis of tongue<sup>34</sup>. According to this purana medicinal plants are used in five ways, such as :-

1. Rasa – it is the liquid by crushing the plant parts
2. Kalka – It is obtained by winnowing various parts of the plant such as flower, fruits, seeds
3. Śrta – the decotion obtained from the plant tissues

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तालबिल्वफलं भूक्त्वा जलपानं च तत्क्षणम् ।  
तदेव तु भवेत्पित्तं सद्यः प्राणहरं परम् ॥  
तप्तोदकं च शिरसि भद्रे तित्तं विशेषतः ।  
दैवग्रस्तश्च यो भुङ्क्ते पित्तं तस्य प्रजायते ॥  
सशर्करं च धान्याकं पिष्टं शीतोदकान्वितम् ।  
चकणं सर्वगव्यं च दधितक्रविर्वजितम् ॥  
बिल्वतालफलं पक्वं सर्वमैक्षवमेव च ।  
आर्द्रकं मद्गयूषं च तिलपिष्टं सशर्करम् ॥  
पित्तक्षयकरं सद्यो बलपुष्टिप्रदं परम् ।  
पित्तनाशं च तद्बीजमुक्तमन्यन्निबोध मे ॥

#### *Kapha*

वहिस्वेदं भ्रष्टभङ्गं पक्वतैलविशेषकम् ।  
भ्रमणं शुष्कभक्षं च शुष्कपक्वहरीत की ॥  
पिण्डारकमपक्वं च रम्भाफलमपक्वम् ।  
वेसवारः सिन्धुवार अनाहारमपानकम् ॥  
सघृतं रोचनाचूर्णं सघृतं शुष्कशर्करम् ।  
मरीचं पिप्पलं शुष्कमार्द्रकं जीवकं मधुः ॥  
द्रव्याण्येतानि गान्धर्वि सद्यः श्लेष्महराणि च ।  
बलपुष्टिकराण्येव वायुबीजं निशामयम् ॥

*Brhmavaivartapurana, Brhmaghanda XVI. p. vv. 56 - 71, pp. 42 - 45.*

<sup>34</sup> ताम्बूलं च वरं रम्यं कपूरादिसुवासितम् ।  
जिह्वाजाड्यच्छेदकरं ताम्बूलं देवि गृह्यताम् ॥  
*Vāmanapurāṇa, XXXIX, v. 33. p. 290.*

4. Śeeta – It is the plant exudation that occurs during night
5. Phanta – recently obtained shrita<sup>35</sup>.

Ancient Indians realized the fact that without sufficient flora they could not be possible to manage their life since it is the very source of food and shelter which also help them survive natural calamities like flood and drought. Therefore they enforced rules, dictums and restrictions against uncontrolled exploitation of natural resources by men. Some disciplinary actions and punishments were imposed by them on the guilty for the violation of such rules. Varāḥapurāṇa<sup>36</sup>, Kūrmapurāṇa<sup>37</sup>, Matsyapurāṇa<sup>38</sup> tried to restrict and discourage the people from the over

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<sup>35</sup> ओषधीनां पञ्चविधा तथा भवति कल्पना ।  
रसः कल्कः शृतः शीतः फाण्टश्च मनुजोत्तम ॥

*Agnipurāṇa*, v.21, p.35

<sup>36</sup> कर्मण्याश्चैव ये वृक्षान् न ष्टेतव्या कदाचन ।  
ii. नगरोपवने वृक्षान् प्रमादात्थि छिनत्ति यः ।  
स गच्छेन्नरकं नाम जुम्भणं रौद्रदर्शनम् ॥  
iii. तद्वृक्षं छेदयेद्यस्तु वृक्षान् छायामुशीतलान् ।  
असिपत्रवने घोरे पीडयते यमकिङ्करैः ॥

*Varāḥapurāṇa*, p. 304.

<sup>37</sup> चैत्यं वृक्षं न वै छिद्यान्नाप्सु ष्टीवनमुत्सृजेत् ।  
नास्थि भस्मकपालानि न कंशान्न च कण्डकान् ।  
ओषांगारकरीषं वा नाधितिष्टेत्कदाचन ॥

*Kūrmapurāṇa*, U. XVI. vv. 79 - 80. p. 305.

<sup>38</sup> वृक्षं तु सफलं छित्वा सुवर्णं दण्डमर्हति ।  
द्विगुणं दण्डयेच्चैनं पथि सीम्नि जलाशये ॥  
छेदनादफलस्यापि मध्यमं साहसं स्मृतम् ।  
गुल्मवल्लीलतानां च सुवर्णस्य च माषकम् ॥  
वृथा छेदी तृणस्यापि दण्ड्यः कार्षापगं भवेत् ।

exploitation of nature. *Brahmavaivartapurāṇa*<sup>39</sup> and *Kūrmapurāṇa* gives an account of various punishments awarded to those mischievous people engaged in such exploitation of nature in violation of such established norms.<sup>40</sup>

Indian epics adopted the same attitude of puranic literature while dealing with nature and its flora and fauna. *Rāmāyaṇa* deals with some plants in its various kanda's like *Āraṇyakanda*, *Kiṣkindhakāṇḍa*, *Bālakāṇḍa* and *Yudhakāṇḍa*. *Rāmāyaṇa* classified the herbs of Himalaya in to four types.<sup>41</sup> *Mahābhārata* says that plants originated much earlier

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त्रिभागं कृष्णाला दण्ड्याः प्राणिनस्ताडने तथा ।  
देशकालानुरूपेण मूल्यं राजा द्रुमादिषु ।  
तत्स्वामिनस्तथा दण्डिन्याः दण्डमुक्तस्तु पार्थिवः ॥

*Matsyapurāṇa*, CCXXVII. vv. 92 - 95. pp.816

39 अश्वत्थतरुघाती च विष्णुवैष्णवनिन्दकः ।  
तं यातु चन्द्रपापं च दुर्निवारं च दारुणम् ॥

*Brhmavivarthapurāṇa*, LVIII, v.88.

पितृमातृविरक्तं च द्विजाश्वत्थविधातिनम् ।

*Brhmavivarthapurāṇa*, 35-40

40 तृणं वा यदि वा शाकं मृदं वा जलमेव च ।  
परस्यापहरन् जन्तुः नरकं प्रतिपद्यते ॥  
पुष्पैः शाकोदके काष्ठे तथा मूले तृणे फले ।  
अदत्तादानमस्तेयं मनुः प्राह प्रजापतिः ॥  
गृहीतव्यानि पुष्पाणि देवार्चनविधौ द्विजाः ।  
नैकस्मादेव नियतमननुज्ञाय केवलम् ॥  
तृणं काष्ठं फलं पुष्पं प्रकाशं वै हरेद्बुधः ।  
धर्मार्थं केवलं ग्राह्यं ह्यन्यथा पतितो भवेत् ॥

*Kūrmapurāṇa*. XVI. 2-9 p.168

41 दक्षिणे शिखरे जाता महौषधिभिहानय ।  
विशल्यकर्णी नाम्ना सावर्णकर्णी तथा ।

than the origin of animals on the on earth.<sup>42</sup> Besides that the Mahābhāratha also hold the view that plants have life which includes five principal elements and they can respond like animals towards all type of actions.<sup>43</sup>

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संजीवकर्णी वीर संधानी च महौषधिकम् ॥

Ramāyaṇa, VI. vv. 31 - 32, p. 243.

42 ततः सस्यानि राहन्ति येन वर्तयते जगत् ।

मांसमेदोऽस्थिशुक्राणां प्रादुर्भावस्ततः पुनः ॥

*Mahābhārata Anuśāsanaparva*, LXII, v. 39, p. 360.

43 भरद्वाज उवाच ।

पञ्चभिर्यदि भूतैस्तु युवताः स्थावरजड्गमाः ।

स्थावराणां न दृश्यन्ते शरीरे पञ्च धातवः ॥

अनूष्मणामचेष्टानां घनानां चैव तत्त्वतः ।

वृक्षाणां नोपलभ्यन्ते शरीरे पञ्चधातवः ॥

न शृण्वन्ति न पश्यन्ति न गन्धरसवोदिनः ।

न च स्वर्शं विजानन्ति ते कथं पाञ्चभौतिकाः ॥

अद्रवत्वादनग्नित्वादभौमत्वादवायुतः ।

आकाशस्याप्रमेयत्वाद्ब्रह्मणां नास्ति भौतिकम् ॥

भृगुरुवाच

घनानामपि वृक्षाणामाकाशोऽस्ति न संशयः ।

तेषां पुष्पफले व्यक्तिर्नित्यं समुपलभ्यते ॥

ऊष्मतो ग्लानवर्णानां त्ववफलं पुष्पमेव च ।

म्लायते चैव शीतेन स्पर्शस्तेनात्र विद्यते ॥

वाय्वग्न्यग्निनिष्पेषैः फलपुष्पं विशीर्यते ।

श्रोत्रेण गृह्यते शब्दस्तस्माच्छृण्वन्ति पादपाः ॥

वल्ली वेष्टयते वृक्षं सर्वतश्चैव गच्छति ।

न ह्यदृष्टेश्च मार्गोऽस्ति तस्मात्पश्यन्ति पादपाः ॥

पुण्यापुण्यैस्तथा गन्धैर्धूपैश्च विविधैरपि ।

अरोगाः पुष्पिता सन्ति तस्माज्जिघ्रन्ति पादपाः ॥

पादैः सलिलपानं च व्याधीनामपि दर्शनम् ।

व्याधिपतिक्रियत्वाञ्च विद्यते रसनं द्रुमे ॥

वक्त्रेणोत्पलनालेन यथोर्ध्वं जलमाददेत् ।

तथा पवनसंयुक्तः पादैः पिबति पादपः ॥

ग्रहणात्सुखदुःखस्य छिन्नस्य च विरोहणात् ।

जीवं पश्यामि वृक्षाणामचैतन्यं न विद्यते ॥

तेन तज्जलमादत्तं जरयत्यग्निसारुतैः ।

आहारपरिणामाच्च स्नेहो वृद्धिश्च जायते ॥

जड्गमानां च सर्वेषां शरीरे पञ्च धातवः ।

Anuśāsanaparva, Śāntiparva, and Sahbāparva provides lots of description about plants and their peculiar features. Anuśāsanaparva of reveals the interdependence of plants with environment which utilize nature for their proper growth and in return maintain the purity the nature.<sup>44</sup> The Śāntiparva of mention the circulation of circulation of sap in plants, from which we can develop their necessary nutrients. According to Mahābhāratha plants produce their nutrients from the sun light and a component of the air (now known as carbon dioxide) with the help of solar energy (agni) and air. The plants managed their growth without any obstruction by assimilating these nutrients.<sup>45</sup> Mahābhāratha also furnishes with various information about the physiology of plants, and the necessity of sunlight for the preparation the food by the plants.

Like the Puranas Mahābhāratha also remind us about the utilities and necessity of plant for the existence of our life, and persuade men from

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प्रत्येकशः प्रभिघन्ते ये शरीरं विचेष्टते ॥

*Ibid. Śāntiparva, CXXVII. vv. 6 – 19, pp.1008-1010.*

<sup>44</sup> पुष्पैः सुरगणान् वृक्षाः फलैश्चापि तथा पितृन् ।  
छायया चातिथिं तात पूजयन्ति महीरुहः ॥  
पुष्पिताः फलवन्तश्च तर्पयन्तीह मानवान् ।  
वृक्षदं पुत्रवद् वृक्षास्तारयन्ति परत्र तु

*Ibid. Anuśāsanaparva, LVIII, vv. 28 - 29. p. 393.*

<sup>45</sup> Nirmal Trikha, Scientific knowledge in Sanskrit Literature, Eastern Book Linkers. p. 60.

the over exploitation of nature as well as plants. Anuśāsanaparva of Mahābhāratha reveals some usefulness of plants in our routine life<sup>46</sup>. and dissuade us from cutting and destroying trees and nature.<sup>47</sup>

From the above-mentioned information we can arrive at the conclusion that both puranic and epic literature has shown excessive attention towards the protection of nature, its flora ,fauna and environment. Moreover, they had proper and thorough knowledge about the whole type of plant science such as nomenclature, morphology, anatomy, physiology, cultivation and propagation and considered the protection of nature with high importance and much attention.

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<sup>46</sup> मानवं पुत्रवद् वृक्षाः तास्यन्ति परत्र च ।  
पुत्रवत्परिपाल्यास्ते पुत्रास्ते धर्मतः स्मृताः ॥

Ibid. Anuśāsanaparva, p. 129.

<sup>47</sup> आश्रमे वा वने वापि ग्रामे वा यदि वा पुरे ।  
अग्निं समुत्सृजेन्मोहात्तं विद्यात् ब्रह्मघातिनम् ॥  
Mahābhāratha, Anuśāsanaparva. XXIV. v. 12, p. 109.

### CHAPTER III

## ANALYSIS OF PLANTS IN AYURVEDIC WORKS

The word 'Āyurveda' is derived from the root 'Āyu' and 'Veda'. The word "Āyu" refers to all aspects of life from birth to death. The word "Veda" means knowledge or learning at the deepest level, the wisdom of this conscious universe that we can organize within ourselves and in our own life.<sup>1</sup>

The term 'Āyurveda' is seen first used in the *Atharvaveda*. *Atharvaveda* contains many hymns, prayers and charms for the treatment of disease. According to *atharvaveda* application of medicine and treatment were known as 'bheṣaja'.<sup>2</sup>

*Āyurveda* deliberated about the qualities of various herbs and plants its usefulness in the treatment of diseases. It also carefully studied the peculiar features of plants and the treatment of plants for their infections. Thus ancient Indians developed a special branch in *Āyurveda*

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<sup>1</sup> Ayurveda nature's medicine. p.7.

<sup>2</sup> A cultural study of the atharvaved, p.240.

known as *Vṛkṣāyurveda*<sup>3</sup> which discussed about treatment for various diseases infected upon the plants. Some *Āyurvedic* works such as *Carakasamhitha*, *Suśruthasamhitha*, *Aṣṭāṅgasamgraha* and *Aṣṭāṅgahrdaya*. etc. distinctly discussed about taxonomy of plants.

### *Carakasamhitha*

*Carakasamhitha*, the unique *āyurvedic* work classified plants into three on the basis of three distinct principles, viz;-:

<i>Udbhijjādi</i>	-	Botanical
<i>Annapānādi</i>	-	Dietary
<i>Virecanādi</i>	-	Medicinal <sup>4</sup>

Botanical classification of plants in *Carakasamhitha* is as follows:-

1. *Vānaspati*
2. *Vānaspatya*
3. *Vīrudda*
4. *Auśadhi*<sup>5</sup>

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<sup>3</sup> *Biodiversity and Ecology concepts and facts*, (ed.) University of Calicut, p.1.

<sup>4</sup> Trikha Nirmal, *Scientific knowledge in Sanskrit Literature*, Eastern Book Linkers (India), 2009.

<sup>5</sup> *Carakasamhitha*, v. 72. p. 42.



Among these classification *Vanaspati* are plants having fruits without evident flowers, *Vānaspatya* bearing both fruits and flowers, *Vīrudha* are creepers without expanding stems, and *Auṣadhi* are plants which wither away when their fruits become ripe.<sup>6</sup>

According to *Charakasamhita*, the dietary classification of plants are:-

1. *Śūkadhānya* (Monocotyledons)<sup>7</sup>
2. *Śamīdhānya* (Di-cotyledons)<sup>3</sup>
3. *Māmsadhānya*
4. *Śākavarga* (Group of vegetables)<sup>8</sup>
5. *Phalavarga* (Group of fruits)<sup>9</sup> and
6. *Haritavarga* (Class of greens)<sup>10</sup>
7. *Madhyavarga* (Group of wines)
8. *Jalavarga* (Group of water)
9. *Iksuvarga*

Among these classification *śamīdhānya* includes varieties of pulses, *śākavarga* comprises leaves, roots, fruits, flowers, *phalavarga* fruits and *Haritavarga* vegetables used uncooked in the salad form.

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<sup>6</sup> Trikha Nirmal, *Scientific Knowledge in Sanskrit Literature*, Eastern Book Linkers (ed.) 2009. p. 42.

<sup>7</sup> *Charakasamhita.*, Sūtrasthāna, xxvii, 8-9. vv. 191.

<sup>8</sup> Ibid., xxvii, vv. 24-34, p. 193.

<sup>9</sup> Ibid., cxxii, v.1. p. 194.

<sup>10</sup> Ibid., xxvii, v. 3, p. 195.

*Carakasamhitha* classified a few groups of medicinal plants and herbs based on the medicinal properties of different parts of the plant such as root, bark, *sāra*, secretions, fibre, juice tender leaves, latex, fruits, flowers, ashes, oils, thorns, matured leaves, sprouts etc. This classification was made based on the medicinal power of these herbs and plants to cure deranged *vāyu* (*vāta*), *piṭṭa* (phlegm) and *kapha* (bile).<sup>11</sup>

In this manner *Caraka* classified herbs into fifty groups, each group consisting of ten plant substances. There are fifteen plant roots, twenty fruits, three plant latex, and other three barks which are employed for therapeutic use.<sup>12</sup>

1. *Jivanīya* (life promoters)<sup>13</sup>
2. *Brihanīya* (Roborants)<sup>14</sup>
3. *Lekhanīya* (Weight reducing)<sup>15</sup>
4. *Bhedanīya* (Purgative)<sup>16</sup>
5. *Sandhānīya*<sup>17</sup> (wound healing)
6. *Dīpanīya*<sup>18</sup> (Digestive stimulants)

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<sup>11</sup> Ibid., iv, vv. 166-176. p. 204.

<sup>12</sup> Ibid. iv, vv. 1 - 6, pp. 76 - 87.

<sup>13</sup> Ibid., iv, v. 1, p. 76.

<sup>14</sup> Ibid. 9(i). p. 77.

<sup>15</sup> Ibid. a(ii). p. 77.

<sup>16</sup> Ibid. 9(iii). p. 77.

<sup>17</sup> Ibid. 9. p. 77.

7. *Balya*<sup>19</sup> (Strength giving)
8. *Varnya*<sup>20</sup> (complexion promoters)
9. *Kantha*<sup>21</sup> (Good for voice)
10. *Hṛdya*<sup>22</sup> (Cardic tonics)
11. *Triptighñā*<sup>23</sup> (Appetisers)
12. *Arśhoghñā*<sup>24</sup> (Anti-hemorrhoidals)
13. *Kuṣthaghñā*<sup>25</sup> (Cure for dermatosis)
14. *Kaṇḍughñā*<sup>26</sup> (Anti-itching)
15. *Kṛmighna* (Anti-infection)
16. *Viśaghñā*<sup>27</sup> (Poison antidote)
17. *Stāñyajanana*<sup>28</sup> (Galactogogues)
18. *Stanyaśhodhaka*<sup>29</sup> (Galactopurifiers)
19. *Śukrajanana*<sup>30</sup> (Spermmatopoiotics)
20. *Svedopaga*<sup>31</sup> (Perspiration inducing)
21. *Sñehopaga*<sup>32</sup> (Semen-Purifiers)
22. *Vamanopaga*<sup>33</sup> (Adjuvants of emesis)

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<sup>18</sup> *Ibid.* v. 6, p. 78.

<sup>19</sup> *Ibid.* v. 7, p. 78.

<sup>20</sup> *Ibid.* v. 8, p. 78.

<sup>21</sup> *Ibid.* v. 9, p. 78.

<sup>22</sup> *Ibid.* v. 10, p. 79.

<sup>23</sup> *Ibid.* v. 11, p. 79.

<sup>24</sup> *Ibid.* v. 12, p. 79.

<sup>25</sup> *Ibid.* IV, v.13, p. 79.

<sup>26</sup> *Ibid.* v. 14, p. 79.

<sup>27</sup> *Ibid.* v. 15, p. 80.

<sup>28</sup> *Ibid.* v. 16, p. 80.

<sup>29</sup> *Ibid.* v. 17, p. 80.

<sup>30</sup> *Ibid.* v. 18, p. 80.

<sup>31</sup> *Ibid.* v. 19, p. 80.

<sup>32</sup> *Ibid.* v. 20, p. 81.

23. *Virecanopaga*<sup>34</sup> (purgatives)
24. *Āsthāpanopaga*<sup>35</sup> (Adjuvants of non-oily type of enema)
25. *Anuvāsanopaga*<sup>36</sup> (Adjuvants of oily type of enema)
26. *Śirovirecanopaga*<sup>37</sup> (Head-purgative)
27. *Chardinigrahaṇa*<sup>38</sup> (Anti-emetics)
28. *Tṛṣṇānigrahaṇa*<sup>39</sup> (Anti-thirst)
29. *Hikkānigrahaṇa*<sup>40</sup> (Anti-hiccup)
30. *Purīśasṅgrahaṇīya*<sup>41</sup> (Bowel - binding)
31. *Mūtrasaṅgrahaṇīya*<sup>42</sup> (Urinary astringents)
32. *Purīśavirajānīya*<sup>43</sup> (corrective of fecal pigments)
33. *Mūtravirajānīya*<sup>44</sup> (Corrective of urinary pigments)
34. *Mūtravirecanīya*<sup>45</sup> (Diuretics)
35. *Kāśahara*<sup>46</sup> (Anti-cough)
36. *Śvāsahara*<sup>47</sup> (Anti-bronchitis)
37. *Śoṭhaḥara*<sup>48</sup> (Anti-dropsy)

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<sup>33</sup> *Ibid.* v. 21, p. 82.

<sup>34</sup> *Ibid.* v. 23, p. 82.

<sup>35</sup> *Ibid.* v. 24, p. 82.

<sup>36</sup> *Ibid.* v. 26, p. 82.

<sup>37</sup> *Ibid.* v. 27, p. 82.

<sup>38</sup> *Ibid.* v. 28, p. 82.

<sup>39</sup> *Ibid.* v. 29, p. 83.

<sup>40</sup> *Ibid.* v. 30, p. 83.

<sup>41</sup> *Ibid.* v. 31, p. 83.

<sup>42</sup> *Ibid.* v. 32, p. 83.

<sup>43</sup> *Ibid.* v. 33, p. 84.

<sup>44</sup> *Ibid.* v. 34, p. 84.

<sup>45</sup> *Ibid.* v. 35, p. 84.

<sup>46</sup> *Ibid.* v. 36, p. 84.

<sup>47</sup> *Ibid.* v. 37, p. 85.

<sup>48</sup> *Ibid.* v. 38, p. 85.

38. *Jvaraḥara*<sup>49</sup> (Cure for fever)
39. *Śramahara*<sup>50</sup> (Anti-fatigue)
40. *Dāhapraśamana*<sup>51</sup> (Anti burning sensation)
41. *Śītāpraśamana*<sup>52</sup> (Anti-cold)
42. *Udardapraśamana*<sup>53</sup> (Anti-urticarials)
43. *Añgamardapraśamana*<sup>54</sup> (cure for malaise)
44. *Śūlapraśamana*<sup>55</sup> (Cure for pain)
45. *Śonitāsthāpana*<sup>56</sup> (Haemostatics)
46. *Vedanasthāpana*<sup>57</sup> (Sedatives)
47. *Sañmāsthāpana*<sup>58</sup> (Restoratives of consciousness)
48. *Prajāsthāpana*<sup>59</sup> (Procreatants)
49. *Āyuhsthāpana*<sup>60</sup> (Longevity promoters)
50. *Vayasthāpana* (Promote Progeny)

***Carakasamhitha*** precisely referred to the characteristic significance of plants on the basis of its gender as male plants and female

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<sup>49</sup> *Ibid.* v. 39, p. 85.

<sup>50</sup> *Ibid.* v. 40, p. 85.

<sup>51</sup> *Ibid.* v. 41, p. 85.

<sup>52</sup> *Ibid.* v. 42, p. 86.

<sup>53</sup> *Ibid.* v. 43, p. 86.

<sup>54</sup> *Ibid.* v. 44, p. 86.

<sup>55</sup> *Ibid.* v. 45, p. 86.

<sup>56</sup> *Ibid.* v. 46, p. 86.

<sup>57</sup> *Ibid.* v. 47, p. 87.

<sup>58</sup> *Ibid.* v. 48, p. 87.

<sup>59</sup> *Ibid.* v. 49, p. 87.

<sup>60</sup> *Ibid.* v. 50, p. 87.

plants.<sup>61</sup> According to this plants yielding big fruits, have white flowers and oily leaves are male and that with blue or black colour, attractive flowers, small fruits and thin foot-stalk of leaf, flower and fruit are female plants. *Carakasamhitha* categorises plants based on its taste in the eighth chapter *Vimānasthnam* as<sup>62</sup>:-

1. *Madhuraskandha* (Sweet group)<sup>63</sup>
2. *Amḷaskandha* (Sour group)<sup>64</sup>
3. *Lavaṇaskandha* (Strong group)<sup>65</sup>
4. *Kaṭukaskandha* (Pungent group)<sup>66</sup>
5. *Tiktaskandha* (Bitter group)<sup>67</sup>
6. *Kaṣāyaskandha* (Astringent group)<sup>68</sup>

### ***Suśrutasamhita***

Similarly as *Carakasamhitha*, *Suśrutasamhita* also divided plants into four types:

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<sup>61</sup> *Ibid.* V, pp. 372 - 375. .

<sup>62</sup> *Ibid.* *Vimānastanam*, VIII, v. 145, p. 375.

<sup>63</sup> *Ibid.* VIII. v. 139. p. 373.

<sup>64</sup> *Ibid.* v. 141, p. 373.

<sup>65</sup> *Ibid.* v. 140, p. 373.

<sup>66</sup> *Ibid.*, *Vimānasthānam* VIII, v. 142, p. 374.

<sup>67</sup> *Ibid.*, v. 143 , p. 374

<sup>68</sup> *Ibid.*, v. 144, p. 375.

1. *Vanaspati*, 2. *Vṛkṣa* (*Vānaspatya*), 3. *Vīrudh* and 4. *Oṣadhi*<sup>69</sup>

Among these classification *Vanspati* bears fruits without flower, *vṛkṣa* has both fruits and flowers, *vīrudha* is a creeper and *oṣadhi* decays after the fruit is ripened.<sup>70</sup>

*Suśruthasamhitha* classified medicinal herbs into thirty seven groups.<sup>71</sup> Moreover it enumerates the plant properties which comprises these group.

1. *Vidārīgandhādigaṇa*
2. *Āragvdhādigaṇa*
3. *Varuṇādidaṇa*
4. *Vīratarvādgaṇa*
5. *Sālasāradigaṇa*
6. *Rorādigaṇa*
7. *Arkādigaṇa*
8. *Surasādigaṇa*
9. *Muṣkakādigaṇa*
10. *Pippalyādigaṇa*
11. *Elādigaṇa*
12. *Vacādigaṇa*

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<sup>69</sup> *Suśruthasamhitha*, *Śūtrastānam* I, v. 29, p.9.

<sup>70</sup> *Ibid.* p. 64.

<sup>71</sup> *Ibid.* Dravya sangraḥaniyam, xxxviii. pp. 342 - 356.

13. *Haridrādigāṇa*
14. *Śyāmādigāṇa*
15. *Vṛhatyādigāṇa*
16. *Paṭolādigāṇa*
17. *Kakolyādigāṇa*
18. *Uṣhakādigāṇa*
19. *Sarivādigāṇa*
20. *Añjanādigāṇa*
21. *Priyāngvādigāṇa*
23. *Amvashthādigāṇa*
24. *Nyagrodhādigāṇa*
25. *Gudūchyādigāṇa*
26. *Utpalādigāṇa*

There was further classification of plants into various groups based on their peculiar characteristics. For instance *Suśrutha* further classified plants in to various ways on the basis of their products,<sup>72</sup>taste<sup>73</sup>etc. Again he classifies plants in to three based on the fertility of soil viz.

1. *Jāngala*
2. *Anūpa*
3. *Sādāraṇa*

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<sup>72</sup> *Ibid.* v. 9, pp. 277 - 285.

<sup>73</sup> *Ibid.* XLII, v. 1, pp. 387 - 393.



Besides that there is another type of classification done by *Suśrutha*, based on the dietary value of plants.

1. *Śālivarṅga*
2. *Kudhānya varṅga*
3. Phala varṅga
4. *Śāka varṅga*
5. *Puṣpa varṅga*
6. *Kanda varṅga*

*Vāgbhaṭa*, in his *Aṣṭāṅgasamgraha* classifies plants on the basis of their medicinal values in his unique work.<sup>74</sup> as :-1. *Vamanopayogī* (emetics), 2. *Virecanopayogī* (purgatives), 3. *Nirūhopayogī* (decoction enema), 4. *Śirovirecanopayogi* (purgation for the head) and 5. *Prayogika dhūmopayogi* (inhalation).

1. *Vamanopayogi* (emetics)
2. *Virecanopayogi* (Purgatives)
3. *Nirūhopayogi* (decoction enema)
4. *Śiroviveranopayogi* (purgation for the head)
5. *Prayogikadhūmopayogi* (inhalation)

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<sup>74</sup> *Aṣṭāṅgasamgraha* XIV. p. 293.

There after he mentions various kinds of plants and plant organs in the 15 chapter of his work.<sup>75</sup> They are

1. *JīvanĪya* (Life promoters)
2. *BrimhaṅĪya* (Roborants)
3. *LekhaṅĪya* (Weight reducing)
4. *Bhedaniya* (Purgative)
5. *Sandhāniya* (Repairing)
6. *Dipaniya* (Digestive stimulants)
7. *Balya* (Strength giving)
8. *Varṇya* (Complexion promoters)
9. *Kaṇḍya* (Suitable for voice)
10. *Hṛdya* (Suitable for heart)
11. *Tṛiptigna* (Appetisers)
12. *Aṛśogna* (Anti-hemorrhoidals)
13. *Kuṣḍhogna* (Cure for dermatoid)
14. *Kaṇḍūgna* (Anti-itching)
15. *Kṛmigna* (Anti-infection)
16. *Viṣagna* (Poison killer)
17. *Sthānyaśana* (Galactogogues)
18. *Sthānyaśodhana* (Galacto-purificators)
19. *Śukrajanan* (Spermmatopiietics)
20. *Śukraśodhana* (Semen-purifiers)

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<sup>75</sup> *Ibid.* p. 300,

*Aṣṭāṅgahr̥daya* of *Vāgbhaṭṭa* II also classified plants into four types.<sup>76</sup>

Simultaneous to such *Ayurvedic* works there were other works which elaborately discussed upon plant taxonomy. Consequently a lot of classifications, based on different methods can be seen in various works such as *Arthasātra*, *Manusmṛti*, *Br̥hadsam̥hitha*, *Vṛkṣhāyurveda*, *Śarangadarapadhati*, *Upavanavinoda*, *Sukranīti* etc. The second chapter of *Arthasāstra* gives us some information about classification of plants into various groups on the basis of its properties<sup>77</sup> and land suitable for their growth and cultivation .etc.<sup>78</sup>

*Varāhamihira* mentioned certain classifications of plants on the basis of their fertility,<sup>79</sup> gender,<sup>80</sup> and nomenclature<sup>81</sup> such as <sup>82</sup>1. *Vṛkṣa*, 2. *Gulma* and 3. *Latā*. Again he introduced another type of classification that is, 1. *Śukadhānya*, 2. *Kośadhānya*<sup>83</sup> and 3. *Śamijāti*<sup>84</sup>

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<sup>76</sup> *Aṣṭāṅgahr̥daya*, *Sūtrastānam*, v. 12. p. 196.

<sup>77</sup> *Arthasāstra* II. v. 25. p. 276.

<sup>78</sup> *Ibid.* II, vv. 116 - 117. p. 342.

<sup>79</sup> *Br̥hadsam̥hita* XXXVII, v.13.

<sup>80</sup> *Ibid.* XLII, v. 14.

<sup>81</sup> *Ibid.* L, v. 30.

<sup>82</sup> *Ibid.* v. 14.

<sup>83</sup> *Br̥hadsam̥hita* VII, v. 8.

<sup>84</sup> *Ibid.* v. 84.

This classification is almost similar to the modern classification of mono-cotyledons and di-cotyledons. Moreover certain other medical works attempt to classify plants into various groups. For instance *Dhanvantirīnighaṇṭu*, *Madanapālanighaṇṭu*, *Bhāvaprakāśhanighaṇṭu*<sup>85</sup> also supplies valuable account of classification of plants.<sup>86</sup> Accordingly,

*Dhanvantirīnighaṇṭu* classifies plants as:-

1. *gūdūchyādi varga*
2. *Śathapuṣpadi varga*
3. *Candanādi varga*
4. *Karavīrādi varga*
5. *Amṛādi varga*
6. *Suvarṇādi varga*
7. *Miśrakādi varga*

Classification of plant groups according to in *Madanapālanighaṇṭu* are as follows:-

1. *Harīthakyādi varga*
2. *Karpūrādi varga*
3. *Gūdūchyādi varga*

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<sup>85</sup> Nirmal Trikha, Scientific knowledge in Sanskrit Literature, Eastern Book Linkers. p. 32.

<sup>86</sup> Idem.

4. *Ikṣuvarga*
5. *Dugha varga*
6. *Mūla varga*
7. *Madhu varga*

Classification of plant Properties as in *Bhāvaprakāśanighantu* are the following:-

1. *Harīthakyādi varga*
2. *Gūdūchyādi varga*
3. *Amrādi varga*
4. *Dhānyādi varga*
5. *Puṣpādi varga*
6. *Vadādi varga*
7. *Ikṣu varga*

*Manusmṛti* refers certain classification of plants such as

1. *Oṣadhi*, 2. *Vanaspati*, 3. *Vṛkṣa* 4. *Guccha* (bushes) 5. *Gulma* (succulent shrubs), 6. *Tṛṇa* (grass), 7. *Pratāna* (creeper with stems spreading on the ground) and 8. *Vallī* (climbers).

*Aṣṭādhyāyi* also classified plants as 1. *Oṣadhi* and 2. *Vanaspati*

Certain chapters of *Amarakośa* gives important evidence of some botanical classification of plants viz.,

1. *Vānaspathya*
2. *Vanaspati*
3. *Auśadha*
4. *Ksupa*
5. *Stamba*
6. *Gulma*
7. *Vallī*
8. *Latā*
9. *Tṛṇa*
10. *Water plants*<sup>87</sup>

Thus from the above mentioned references it is evident that ancient people had made an exhaustive effort for the study of the nomenclature and taxonomy of plants. Their classification was mainly based on external characteristics as well as medicinal use of plants.<sup>88</sup> *Carakasamḥita* precisely analysed a lot of peculiarities of various plant parts such as *mūla* (root), *Tvak* (bark), *sāra* (extract), *Niryāsa* (secretions), *Nāla* (fibre), *svarasa* (juice) *pallava* (tender leaves), *kṣāra* (alkali preparations), *kṣīra*

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<sup>87</sup> Amarakośa II.v. 4.p. 210.

<sup>88</sup> *Carakasamḥita*, I, v. 73. p. 42.

(latex), *phala* (fruits), *puṣpa* (flowers), and *kāṇṭaka* (thorns).<sup>89</sup> Moreover in the fourth chapter of *Carakasamhita* mention is made about ‘*āṃra pallava*<sup>90</sup> (tender leaves of mango), *padmakeśara* (filament of lotus), *sallakītvak*<sup>91</sup> (bark of *sallakī*), *āṃrasthi* (stone of mango) *dhātakīpuṣpāṇi* (flowers of *Dhatkī*) *dārvītvake* (bark of *Berberis aristata*), *pippalīmūla* (root of *pippali*) *Karūpraniryāsa* (extract of *karpūra*) etc.’ some discussions can be seen in the *Bṛhadsamhita* of *Varāhamihira* with regard to the legume (*Nāla*) of sesamum plant.<sup>92</sup> The ancient people had an extensive awareness about plant morphology as seen in *vṛkṣhāyurveda* of *Pārāśara*. This work gives the synonyms of various plants<sup>93</sup> and also details of the parts of certain plants in *vṛkṣhāngasūtrīyādhyāya*<sup>94</sup> and *aṣṭāngasūtrīyādhyāya*.<sup>95</sup>

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<sup>89</sup> *idem*

<sup>90</sup> *Ibid.* IV.v.10, p.79

<sup>91</sup> *Ibid.* v.9,p.78

<sup>92</sup> *Bṛhadsamhita* LIII, v. 115.

<sup>93</sup> *Vṛkṣāyurveda, Bijotpati Kāṇḍa*, iv. 3. pp. 19 - 20.

<sup>94</sup> *Ibid.* vii. 2. p. 11.

<sup>95</sup> *Ibid.* p. 12.

Different parts of plants mentioned in *vr̥kṣāyurveda*.

1. *Paṭra* (leaf)
2. *Puṣpa* (flower)
3. *Phala* (fruit)
4. *Mūla* (root)
5. *Twak* (Bark)
6. *Kāṇḍa* (stem)
7. *Sāra* (Heart wood)
8. *Swarasa* (sap)
9. *Niryāsa* (exudation)
10. *Sneḥa* (oil)
11. *Kāṇṭaka* (spine or prickly)
12. *Bīja* (seed)
13. *Praroḥa* (seedling)

In addition to these the author gives an exhaustive enumeration of all parts of plants one by one based on their characteristics. Leaf is indicated by different synonyms<sup>96</sup> such as *Paṭraṃ*, *Paṇaṃ*, *Pakṣam*, *Daḷaṃ*, *Palāśam*, *Chadam* and *Barham*, and *kisalayaṃ*.<sup>97</sup> *Vr̥ksangasutīyādhyāya* of *Bijotpattikāṇḍa* precisely analyses the entire parts of a leaf and its qualities and peculiarities .

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<sup>96</sup> *Ibid.*, iv. 7.

<sup>97</sup> *Ibid.* iv. 7.



In *Vrkshāyurveda* the different parts of a leaf is named as-<sup>98</sup>

1. *Parapakṣam* (leaf blade or lamina)
2. *Vṛntam* (Petiole)
3. *Patraśīra* (Veins)
4. *Rasakośa* (cells)
5. *Mārhi or māḍi* (Rachis)
6. *Vistāra* (Tendril)
7. *Paṭṭika* (leaf sheath)

Two types of joints of leaf with the tree (*patrabhandanam*) mentioned in *Vṛkshāyurveda* are:-

1. *Pr̥sthāgranthika*<sup>99</sup> (the *vṛntam* is joined to the dorsal surface of lamina) and,
2. *Prāntagranthika*<sup>100</sup> (the *vṛntam* (petiole) is combined to the base of the lamina).

Four kinds of *patrapakṣam* are identified as,

1. *Samapakṣa* (which includes two symmetrical, lateral parts).

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<sup>98</sup> *Ibid.* iv. 10 .

<sup>99</sup> *Ibid.*, iv. 10.

<sup>100</sup> *Ibid.*, iv. 11.

2. *Viṣamapakṣa* (which includes asymmetrical lateral parts).
3. *Samakarṇika* (which includes regular leaf blade) and
4. *Viṣamakarṇika* (which includes irregular leaf blade)<sup>101</sup>

*Vṛntam* is an attachment of two laterally expanded wings which is situated on each sides, *Vṛntam* (petiole) protect the leaf, the flower, and the fruit of the plant, these petioles (*Vṛnta*) are associated with the branches and the rachis, this Phenomena is named as *Vṛntabandhanam*. Seven types of *Vṛntabandhanam*,<sup>102</sup> are recognised in this work .They are:-

1. *Sankulābandhana* (both the petiole and the rachis are attached into an irregular manner on the branches)
2. *Panktibandhana* (the petiole are joined as rows on both sides of the stem).
3. *Pakṣapanktibandhana* (pairs of petioles are combined positively in rows on both sides on the branch of a tree or a creeper)
4. *Vyatyāsapaksapankti* (petioles are arranged one upon the other)

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<sup>101</sup> *Ibid.*, iv. 26.

<sup>102</sup> *Ibid.*, iv. 15.

5. *Punkhabandhana* (petioles are associated in rows on the rachis in a fashion similar to the feathered end of an arrow).
6. *Arabandhana* (the petioles are situated in whorls around the stem) and,
7. *Kurcabandhana* (the leaves are raised from the top of a tree trunk likewise to that a brush-head).<sup>103</sup>

*Patraśira* accomplishes an important role in production and delivery of necessary food for the plants. It is of two types; *Praguna* (Parallel vein) and *Vellita* (reticulate vein)<sup>104</sup> leaves having parallel venation is denoted as *mauñaparna*, while leaves those have reticulate vein are denoted as *jalikāparṇa*.<sup>105</sup>

The *Rasakoṣas* (cells) in plants are the reservoirs of the fluids (Rasa).<sup>106</sup> *Mārhi* or *Rachist* is generally found in the leguminous plants, which hold the petioles of compound leaves of leguminous plants which fall off when the leaves are old.<sup>107</sup> They are classified into two<sup>108</sup>

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<sup>103</sup> Ibid, iv. 15.

<sup>104</sup> Ibid, iv. 25.

<sup>105</sup> *Ibid.*, iv. 25.

<sup>106</sup> *Ibid.*, iv. 25.

<sup>107</sup> *Ibid.*, iv. 25.

<sup>108</sup> *Ibid.*, iv. 29.

1.*Ekasandhikam* (leaflets are joint together at a point) and  
2.*Bahusandhikam* (pairs of leaflets continuously growing along the two  
sides of the rachis).

An additional organ associated to the stem in certain creepers  
constantly like a branch is known as *vistāra* or *vitāna* (tendrils), but in  
some creepers, it is seen as a thread like growth arising from the tip of the  
petiole.<sup>109</sup>

*Paṭṭikam* or *khollaka* is a sheath leaf at the base of the leaf which  
generally appears in grass family and is combined with the leaf and falls  
off when the leaves are old.<sup>110</sup>

The fifth chapter of the *Bījotpathikānda* of *Vṛksāyurveda*  
(*Puṣpāngasūtrīyādhyāya*) precisely analyses a lot of peculiarities of various  
divisions of flowers<sup>111</sup> The synonyms used to denote flowers are; *Puṣpam*,  
*Kusumam Prasūnam* and *Sumaṇam*<sup>112</sup>. Mention is also made about  
*Puṣpapatram* (Bract) and *Kutmala* (flower bud).<sup>113</sup>

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<sup>109</sup> *Ibid.*, iv. 31.

<sup>110</sup> *Vṛksāyurveda*, Bijotpati Kāṇḍa, v. 2.

<sup>111</sup> *Ibid.*

<sup>112</sup> *Ibid.*

<sup>113</sup> *Ibid.*

The different parts of a flower<sup>114</sup> are; *Vallarī* (inflorescence), *Vṛnta* (Pedicel), *Jālaka* (Calyx), *Puṣpadaḷam* (Corolla), *Kēsara* (Stamens), *Bījādhāra* (Ovary), *Varāṭaka* (Style) and *Sthālaka* (Thalamus). The author also give a detailed description about the peculiarities of various parts of flowers.

*Vallarī* or *Mañari* is the axis which arises terminally at the leaf axil from where flowers are originated. There are eight types of *Vallari*.<sup>115</sup>

1. *Palāśavallari* (which includes bracts)
2. *Panktimñjari* (flowers are associated in rows)
3. *Arkamañjari* (pedicels attached to the inflorescence as spokes of a wheel converging at the centre).
4. *Chatramañjari* (pedicels associated in the inflorescence similar to that of radiating ribs of an umbrella).
5. *Gucchā vallari* (numerous clusters of flowers originating from a common axis).
6. *Śankula vallari* (flowers irregularly combined on the axis)

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<sup>114</sup> Ibid.

<sup>115</sup> Ibid. v.8

7. *Akṣamañjarī* (Vallari sprouting from the leaf axil)
8. *Otupucchikā* (Vallari having similarity to cat's tail).

Again these are classified into two: 1. *Saśākha* (having branched axis) 2. *Aśākha* (having unbranched axis)<sup>116</sup>

*Vṛnta* (pedicel) is the stalk bearing a single flower or spore producing body within a cluster. Here the author discusses *puṣpamandalasanniveśa* which signifies the mode of association of the corolla, stamens etc., on the pedicel. These are generally of three types.<sup>117</sup>

1. *Vṛttamaṇḍala* - (Corolla, Stamens associated in whorls).
2. *Pr̥thakamaṇḍala* - (floral leaves combined as in rows)
3. *Miśramaṇḍala* - (floral leaves connected in a mixed manner).

*Jālka* or calyx the group of sepals, usually green, around the outside of a flower that encloses and protects the flower bud. It is also known as *kṣāarakam* and is commonly classified into two types<sup>118</sup> as *Puṣpāntakajālakam* and *Sthirajālakam*. Among these *Puṣpāntakajālakam*

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<sup>116</sup> *Ibid.* v. 17.

<sup>117</sup> *Ibid.* v. 20.

<sup>118</sup> *Ibid.* v. 24.

wither away and falls off with the formation of fruit while in the other type the calyx does not wither away even after the formation of fruit.

Another type of classification of *jālaka* also is referred, that is, *Yuktajālakam* (where the lobes are united) and *Muktajālakam* (where the lobes are free).<sup>119</sup>

2. Moreover, there are plenty of discussions about other features of calyx described in the *vr̥kṣāyurveda*. Based on its appearance calyx is classified as:

1. *Ajinajālaka*<sup>120</sup> (calyx like a skin in appearance)
2. *Jr̥mbitam*<sup>121</sup> (calyx is similar to widely opened mouth)
3. *Upajālaka*<sup>122</sup> (Pedicels holds small leaves below the calyx)
4. *Mocikam*<sup>123</sup> (holds an enveloping leaf which protects the *Aksamanñarī*).

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<sup>119</sup> *Ibid.* v. 24.

<sup>120</sup> *Ibid.* v. 25.

<sup>121</sup> *Idem.*

<sup>122</sup> *Ibid.* v. 26.

<sup>123</sup> *Ibid.* v. 27.

*Puṣpadaḷam* or corolla are the petals of a flower collectively, forming a ring around the reproductive organs and surrounded by an outer ring of sepals. *Vṛkṣāyurveda* mentions four type of corolla's,

1. *Muktadalā* (free petals)
2. *Yuktadalā* (united petals)
3. *Keśarakandalā* (stamens joint together with corolla)
4. *Swairadalā* (located between two sepals)<sup>124</sup>

*Kēsara* (stamens) of a flower is the male reproductive organ of a flower, typically consisting of a stalk filament bearing a pollen-producing anther at its tip. It is commonly divided into three types.<sup>125</sup>

1. *Daḷotsanga* (stamens scrambled to the petals)
2. *Sthālakī* (stamens grow properly from the thalamus)
3. *Varātotsangā* (stamens combined together forming a tube round the pistil).

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<sup>124</sup> *Ibid.* v. 29.

<sup>125</sup> *Ibid.* v. 29.



It is further divided into two groups.<sup>126</sup> *Samakeśara* (of equal length) and

*Viṣamakeśara* (of different length)

Based on the shape of the stamens *Kēśaras* again divided into five types.:-

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1. *Tungakeśarā* (where the anther is placed at the top of the filament).
2. *Mañjukesarā* (where the anther is associated to the filament in a beautiful manner).
3. *Pannagīkesarā* (where the anther resembles the hood of a snake).
4. *Vājīkrāntakeśarā* (where the anther resembles the hoot of a horse).
5. *Ūrmikeśarā* (where stamens are joined along their edges enclosing the style and look like waves).

*Puṣpāngasutriyādhyādhaya* of *Bījotpattikāṇḍa* of *Vṛkṣāyurveda*

deals with the peculiarities of *bījadhāra* (ovary) where seeds are originated. It is two types.<sup>128</sup> *Vidara* (dehiscent) and *Kuḍya* (concealed)

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<sup>126</sup> *Ibid.* v. 35.

<sup>127</sup> *Ibid.* v. 36.

<sup>128</sup> *Ibid.* v. 36.

The wisdom of *pārasāra* pertaining to an ovary does not end with the above division. He noticed certain other remarkable qualities and special significance of an ovary based on which he again divided ovary into three types such as-<sup>129</sup>

1. *Puṣpākrānta*, (where ovary is placed within the floral cavity), 2. *Samvrtā* (where ovary is enclosed within the tubular portion formed by the union of corolla and the stamens which resembles a hand pounding implement.) and *puṣhpasīrṣaka* (where ovary is placed at the tip of the flower stalk). There are different types of ovaries (*bijādhāra*) such as *ekavarṭakam* (unilocular), *baḥuvartakam* (multilocular); *varṭaka* (locules) *pulika* (Septa) *pūṣa* (Placenta).<sup>130</sup>

The top portion of the ovary known as ‘*Varātaka*’ stands as surrounded by the stamens in tubular or globular shape which protect the seeds in the portion called *varāṭasangam*, the joining point of ovary and style.<sup>131</sup>

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<sup>129</sup> *Ibid.* v. 38.

<sup>130</sup> *Ibid.* vi. 38.

<sup>131</sup> *Ibid.* vi. 41.

*Stālika* or thalamus is an axis from which the floral members are originated. *Sthālika* stands firmly associated with the pedicel. It is divided into three types,<sup>132</sup> viz, *Kuṇḍa*, *Flagu* and *Piṇḍa*.

In *Kuṇḍa* type thalamus is flattened like a *śarāba* (disc) while the *flagu* is round and hollow. In *Piṇḍa* type it is a solid round structure.

*Phalāngasutriyādhyāya Bījotpaṭṭikāṇḍa* of the *Vṛkṣāyurveda* gives a detailed account about various parts of fruits<sup>133</sup> and their properties etc.<sup>134</sup> The different parts of fruits mentioned are, *Vṛnta* (Peduncle/Pedicel), *Jālaka* (calyx), *Valkam* (fruitwall), *Śalātu* (*Khandasalaltuvalkala*), *Vartakam* (Locule), *Bijāpuplikam* (Septum), *Bījapuṣa* (Placenta) and *Bīja* (seed). The significance of the different portions of the fruit is also disclosed in this portion.

*Valkam* is the outer most layer of the fruit. It is divided into various types.<sup>135</sup> viz. 1. *Mṛdula* (soft) 2. *Mālūra* (hard and brittle) 3. *Anśuka* (made up of fibrous tissue) 4. *Śukacitam* (covered with hairs) 5. *Kāntaka* (Covered with spines) 6. *Kīlaka* (covered with short pointed projections) 7. *Arbuda*

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<sup>132</sup> *Ibid.* vi. 41.

<sup>133</sup> *Ibid.* vi. 8.

<sup>134</sup> *Ibid.* vi. 2.

<sup>135</sup> *Ibid.* vi. 8.

(irregularly shaped). It is further divided into two<sup>136</sup> 1.*Sandhita* and 2.*Asandhitasandhita* may be of two groups.<sup>137</sup> 1. *Ādhirghasandhita* (fruit dehisces longitudinally from Pedicel to the apex) and 2.*Maṇḍalasandhita* (fruit dehisces transversely at the top).

*Śalātu* is the unripe portion inside the fruit which scattered longitudinally into numerous segments.

*Vartakam* (Locule) is the chamber within the fruit enclosing seeds. *Bijāpuplikam* (Septum) preserves the seeds inside the fruit. This may be soft or hard. *Bījapuṣa* is one kind of tissue which appears in some fruits within which seeds remain embedded.

*Bījābandhanam*, the arrangement of seeds in a fruit is of five types.<sup>138</sup>

1. *Vṛntāntika* (seeds arranged towards the pedicel).
2. *Puplikāntika* (seeds preserved by the septa).
3. *Pūṣāntika* (seeds covered within the placental tissue)
4. *Sthalākāntika* (seeds associated on the thalamus).

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<sup>136</sup> *Ibid.* vi. 12.

<sup>137</sup> *Idem.*

<sup>138</sup> *Ibid.* vii. 21.

5. *Pankṭikā* (seeds pursued in rows along the margin).

The root is the important part of a plant, the cause of the very the existence of plant a life.<sup>139</sup> The synonyms used to the word are *mūlam*, *bradhnam*, *śiphā pādapa* and *caraṇa*.<sup>140</sup> The roots are of different shapes.<sup>141</sup> like that of elephant tusk, horns, thread etc. and varies in colour such as pale, white, yellow, red and blue.<sup>142</sup>

Clear description about bark (*Twak*) of a plant can be found in the seventh chapter of *Bijotpattikanda* including the synonym<sup>143</sup> colour<sup>144</sup> peculiarities and qualities of bark.

*Kāṇḍa* or stem is called as *Prakāṇḍa*, *Skāṇḍha* . etc.<sup>145</sup> and denotes the portion at the top of the roots and help the branches to hold branches and flowers.<sup>146</sup>

*Sāra* (the heart wood) is the hard portion inside the bark of tree which helps the stem of the plant to grow straight and vertical. The

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<sup>139</sup> *Ibid.* vii. 3.

<sup>140</sup> *Ibid.* vii. 4

<sup>141</sup> *Ibid.* vii. 8

<sup>142</sup> *Ibid.* vii. 9

<sup>143</sup> *Ibid.* vii. 12

<sup>144</sup> *Ibid.* vii. 4

<sup>145</sup> *Ibid.* vii. 23

<sup>146</sup> *Ibid.* vii. 31

formation of *sara* takes place through several years forming successive layers.<sup>147</sup> Sometimes they are variegated<sup>148</sup> with various shades in certain trees.

*Swarasa* or *Rasa* (Watery Juice) are of six types which nourishes the plant organs.<sup>149</sup> *Niryāsa* or Exudation is usually considered as a liquid flowout of the plant body. This has different physical properties,<sup>150</sup> such as Flowing watery fluid, Frothy, Slimy, Milky juice, Sticky and Oleo-resinous. Certain organs of plants, such as leaf, flower, heart wood seeds and the exudates have one oleaginous substance called as *Sneha*. Usually it is classified into two.<sup>151</sup> :- Liquid and Solid. *Kantaka* (Spines and Prickles) are some sharp projections (similar to that of knife) that can be found on the bark and eaves of some plants. It is commonly divided into three types.<sup>152</sup>

1. *Ṛju* (Straight)
2. *Vakṛa* (bent downward)

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<sup>147</sup> *Ibid.* vii. 39

<sup>148</sup> *Ibid.* vii. 40

<sup>149</sup> *Ibid.* vii. 45

<sup>150</sup> *Ibid.* vii. 47

<sup>151</sup> *Ibid.* vii. 50

<sup>152</sup> *Ibid.* vii. 52

3. *Kuṭa* (Pointed like a peak)

*Bīja* ensures the survival of the plant kingdom on the earth. Its inborn character is to Pierce upwards and Sprout<sup>153</sup>. A seed have four parts:-

1. *Kīkhosa* (the seed coat)<sup>154</sup>
2. *Bījamāṭrkā* (Kernel)
3. *Bījapatra* (Primary leaf)
4. *Māṭrkacchada* (very small leaf).<sup>155</sup>

There are two types of seeds, *Ekamāṭrka* (monocotyledonous) and *Dwimāṭrka* (dicotyledonous).<sup>156</sup> Seeds are produced in various colours such as white, red, yellow, blue and in various shapes.<sup>157</sup>

The *Praroḥa* or Sprout is illustrated<sup>158</sup> in detail in this work including its special features,<sup>159</sup> *Bījamāṭrka* (Cotyledon), *Bījapatra* (Primary leaf), and *Mūlam* (root)<sup>160</sup>

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<sup>153</sup> *Ibid.* viii. 2

<sup>154</sup> *Ibid.* viii. 3

<sup>155</sup> *Ibid.* viii. 5

<sup>156</sup> *Ibid.* viii. 6

<sup>157</sup> *Ibid.* viii. 7

<sup>158</sup> *Ibid.* viii. 14

<sup>159</sup> *Ibid.* viii. 15

<sup>160</sup> *Ibid.* viii. 15

Based on the shape *praroḥa* is divided into three such

As:-<sup>161</sup>

1. *Avyaktamāṭṛka* (Cotyledon had a hard seed coat)
2. *Vyaktamāṭṛka* (have soft seed coat)
3. *Vidalamāṭṛka* (Cotyledon shrivelled)

This *praroḥa* is further divided into five types of namely -<sup>162</sup>

1. *Bījānkura* (Shoot germinates from seed)
2. *Patrānkura* (shoot germinates from leaf)
3. *Kāṇḍānkura* (shoot propagated by stem cutting)
4. *Kāṇḍānkura* (shoot sprouts out of a tuber or rhizome)
5. *Mūlānkura* (shoot sprouts from the root)

The ancient Indians continued their study a. observation and experiments on plants which resulted in the production of many books on *Vṛkṣāyurveda* enunciating more revelations on usage of plants in daily

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<sup>161</sup> *Ibid.* viii. 19

<sup>162</sup> *Ibid.* viii. 19



life of human beings. *Vṛkṣāyurveda* of *Surapāla* is one of such work which describes many peculiarities of plants and their life.

In addition to these (Morphological) details ancient Indians had deep knowledge about plant physiology. Some *Āyurvedic* works attempt to mention about some physiological characteristics of plants in their works. According to them plants have internal dormant consciousness, and as living bodies they demonstrate some reaction to favourable and unfavourable conditions and exhibit the existence of life and consciousness.<sup>163</sup> *Pārāśara* give an account of some diseases of plants suggests treatments for such diseases.<sup>164</sup> Some other scholars mention certain peculiarities of plants such as sleep, contraction, etc.,<sup>165</sup> *Upaskarasankramisra* discuss about the growth of one kind of tissues in plants by natural recuperation after laceration.<sup>166</sup>

*Pārāśara* exactly analysed a lot of significance of plant physiology. "*Dwigaṇīyādhyaya*" of *Bījotpattikāṇḍa* of *Vṛkṣāyurveda* describe about the existence of consciousness in plants, and the ability to express their

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<sup>163</sup> *kiraṇāvali, pṛthvinirūpaṇam*, pp. 60 - 61.

<sup>164</sup> *op. cit.* viii.21.

<sup>165</sup> Seal Brajendranath, the positive sciences of the ancient Hindus. iv. 4. p. 147.

<sup>166</sup> *Ibid.* p. 174.

feelings such as pleasure and pain.<sup>167</sup> Besides that *Vṛkṣāyurveda* centralized its attention towards the process of nourishment and growth of plants and their association with organic world.<sup>168</sup> It clearly examined about the functioning of transporting system,<sup>169</sup> vascular system<sup>170</sup> and *pañcabhautika* principle<sup>171</sup> on plant life. Besides the method of pollination and fructification in plants are also described.<sup>172</sup>

Similarly several other works signifies the physiological peculiarities of plants, for instance *Manusmṛti* says that as a consequences of one's actions in his previous births a soul obtains the life of a tree, a creeper, bush etc.<sup>173</sup> Manu narrates about the dormant consciousness of plants and their ability to react towards pleasure and pain.<sup>174</sup> Some other works like *Hārītasamhita*,<sup>175</sup> *Carakasamhita*,<sup>176</sup> *Rājanighaṇṭu*, etc.<sup>177</sup> gives a few descriptions pertaining to some ideas about reproductive process and heredity of plants. Ancient Indians were

<sup>167</sup> *Vṛkṣāyurveda*, *Bijotpattikāṇḍa* 1.9.

<sup>168</sup> *Idem*.

<sup>169</sup> *Ibid.* viii. 17

<sup>170</sup> *Ibid.* viii, 18

<sup>171</sup> *Ibid.* viii. 34

<sup>172</sup> *Idem*.

<sup>173</sup> *Manusmṛti*, 1, v.49. p. 42.

<sup>174</sup> *Idem*.

<sup>175</sup> *Harithasamhita* I, vv.12-14. p. 16

<sup>176</sup> *Carakasamhita* V. p. 35.

<sup>177</sup> *Rajanikhaṇḍu*.

well aware about plant propagation, various methods and ideologies are revealed by them with regard to this aspect. They centralized their views towards the availability of favourable circumstances for crop production viz., favourable climatic conditions, soil fertility, irrigation, quality of seed etc. *Manusmṛthi*,<sup>178</sup> *Carakasamhita*,<sup>179</sup> *Suśruthasamhita*,<sup>180</sup> *Arthaśāstra* etc.<sup>181</sup> gives valuable information pertaining to these aspects.

*Arthaśāstra* elaborately describe the methods of cultivation of crops, the quality and suitability of plants and crops, their productivity etc. Accordingly certain group of plants are best for cultivation, while the other groups are of middle type, and some other groups being worst for cultivation. Thus all kinds of rice are the best while vegetables are middle and sugarcane are worst for cultivation.

*Bṛhadsamhita* of *Varāhamihira* discuss about various propagation methods of plant crops such as sowing,<sup>182</sup> cutting,<sup>183</sup> grafting<sup>184</sup> and

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<sup>178</sup> Manusmṛthi, II. vv.112-113.

<sup>179</sup> *Carakasamhita Vimanastāna*, v.8. p. 294.

<sup>180</sup> *Suśruthasamhita, Śarirastāna*, II. v. 33. p. 255.

<sup>181</sup> *Arthaśāstra* II. 25. p. 77.

<sup>182</sup> *Bṛhadsamhita*, LIV, vv. 19-20. p. 527.

<sup>183</sup> *Ibid.* p. 528.

<sup>184</sup> *Ibid.* pp. 528 - 529.

transplantation.<sup>185</sup> Besides that he gives some data pertaining to the treatment of seeds.<sup>186</sup>

Propagation of plants by *bīja* (seed), *parṇa* (leaf) *kāṇḍa* (stem) and *mūla* (root) are also discussed in *Vṛkṣāyurveda* of *Parāśara*.<sup>187</sup> *Brṛhadsamhita*,<sup>188</sup> *Śukranīti*, etc.<sup>189</sup>

In addition to these informations, a few remarkable observations can be seen from certain Sanskrit works pertaining to the utilities of some organic manure. *Brṛhadsamhita*, *Śukranīti*, *Krṣhipārārāśara*, *Vṛkṣāyurveda* and *Upavanavinoda* gives details about various kinds of fertilizers which are suitable for best crops production and the proper application of these manures. According to *Vṛkṣāyurveda* we can differentiate certain valuable fertilizers in the form of composts, mixtures, decoctions, broth, porridge, cakes, washings, husks, powders, pastes, and

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<sup>185</sup> *Idem*

<sup>186</sup> *Idem*

<sup>187</sup> *Vṛkṣāyurveda Bijokāṇḍa* viii.

<sup>188</sup> *Brṛhadsamhita* LIV. v. 13. pp. 527 - 535.

<sup>189</sup> *Śukranīti*, iv, vv. 46-47. p. 358.

pills.<sup>190</sup> Use of *ankola-oil* as a manure formation of *ankila oil* is also described in this work.<sup>191</sup>

*Upavanavinoda*<sup>192</sup>, and *Vṛkṣāyurveda*<sup>193</sup> mentions about the formation of *Kūṇapa* water which is helpful for the fertile growth of plants. *Arthaśāstra* describes one kind of digging which helps to increase the growth rate of plants and make the trees high yielding.<sup>194</sup>

*Bṛhatsamhita* refers to some substances and a few methods of preparations of more effective manures using dung of cow,<sup>195</sup> buffalo,<sup>196</sup> goat,<sup>197</sup> sheep,<sup>198</sup> *uṣira*,<sup>199</sup> sesamum<sup>200</sup>, honey,<sup>201</sup> *vidāṅga*,<sup>202</sup> clarified butter,<sup>203</sup> milk<sup>204</sup> and milk water,<sup>205</sup> mud<sup>206</sup>, horse gram<sup>207</sup>, blackgram,<sup>208</sup>

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<sup>190</sup> op. cit. vv. 112 - 123.

<sup>191</sup> *Upavanavinoda*, vv. 171-174, p. 243.

<sup>192</sup> *Vṛkṣāyurveda* Bijokānda 82-85.

<sup>193</sup> *Agriculture in Ancient India*, Indian Council of agricultural research p.44.

<sup>194</sup> *Bṛhatsamhita* LIV. v. 7. p. 528.

<sup>195</sup> *Ibid*. LIV. v. 5, p. 528.

<sup>196</sup> *Ibid* LIV, v. 30, p. 531.

<sup>197</sup> *Ibid* LIV, 17, p. 531.

<sup>198</sup> *Ibid* LIV, 7, p. 531.

<sup>199</sup> *Idem*.

<sup>200</sup> *Ibid* LIV, v. 16, p. 527.

<sup>201</sup> *Ibid* LIV, v. 24. p. 533.

<sup>202</sup> *Ibid* LIV, v. 25. p. 531.

<sup>203</sup> *Ibid* LIV, v. 7, p. 529.

<sup>204</sup> *Ibid* LIV, v. 5, p. 529.

<sup>205</sup> *Ibid* LIV, v. 15, p. 531.

<sup>206</sup> *Ibid* LIV, v. 25. p. 531.

<sup>207</sup> *Ibid* LIV, v. 16, p. 530.

greengram,<sup>209</sup> barley,<sup>210</sup> groats<sup>211</sup>, rice,<sup>212</sup> roots of some plants,<sup>213</sup> ashes,<sup>214</sup> paste or oil of alangum<sup>215</sup> and cordia<sup>216</sup>, fruit<sup>217</sup>, stale meat<sup>218</sup>, beef<sup>219</sup> and marrow of hog.<sup>220</sup>

Modern scientists also recognized the relevance of the utility of his farmyard manure, which contains all necessary nutrients for plants, viz., nitrogen, phosphorus and potash. etc.<sup>221</sup>

The ancient Indians had thorough knowledge of seasons suitable for different crops, some *āyurvedic* works like *Carakasamhita*, *Suśrutasamhita*, *Brah̄dsamhita*, *Arthaśāstra*, *Śukranīti* gives a lot of information about the seasons suitable for various crop production.

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<sup>208</sup> Ibid LIV, 17

<sup>209</sup> Ibid LIV, 21

<sup>210</sup> Ibid LIV, 22

<sup>211</sup> Ibid LIV, 24

<sup>212</sup> Ibid LIV, 27

<sup>213</sup> Ibid LIV, 27

<sup>214</sup> Ibid LIV, 27

<sup>215</sup> Ibid LIV, 21

<sup>216</sup> Ibid LIV17

<sup>217</sup> Ibid LIV20

<sup>218</sup> Ibid LIV19

<sup>219</sup> Ibid LIV21

<sup>220</sup> Ibid LIV25,

<sup>221</sup> A Consise History of Science in India, Natural Science Academy, New Delhi, 359-60

*Sitādhyākshādhyāya* of *Arthaśāstra* discuss about the necessity of proper rain fall required for crop production, moreover *Arthaśāstra* divides land based on the availability and quantity of rainfall.<sup>222</sup> Both *Arthaśāstra*<sup>223</sup> and *Brhatsamhita* mentions about seasons which are suitable for cultivation of various crops. Moreover *Brhatsamhita*<sup>224</sup>, *Śukranīti*<sup>225</sup>, *Upavanavinoda*<sup>226</sup> and *Carakasamhita*<sup>227</sup> discuss about the necessity of proper irrigation during different seasons.

*Suśruthasamhita* signifies the influence of different seasons on the growth of plants and the adverse effects on plants caused due to abnormal climatic conditions.<sup>228</sup> Another noteworthy fact that some *Ayurvedic* works especially *Carakasamhita* clearly noticed several food crops suitable for cultivation during different seasons<sup>229</sup> and details of seasonal and vegetables, fruits and salads in his work.<sup>230</sup>

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<sup>222</sup> *Arthaśāstra* XXIV, v. 13.

<sup>223</sup> *Idem.*

<sup>224</sup> *Brhadsamhita*, LIV, 10, p. 501.

<sup>225</sup> *Śukranīti*, IV, 53. p. 360.

<sup>226</sup> *Upavanavinoda*, vv. 32-34.

<sup>227</sup> *Carakasamhita*, *Cikitsāstanam*, v. 30, p. 944.

<sup>228</sup> *Suśruthasamhita Uttarastāna* XI, v. 33, p. 45.

<sup>229</sup> *Carakasamhita*, *Sutrastāna*, VI, v. 43. p. 39.

<sup>230</sup> *Ibid.* XXVII, v. 317. p. 297

From the above mentioned descriptions we can conclude the fact that ancient Indians had a deep knowledge of Plant Science with regard to both external and internal characteristics of plants, proper propagation methods, cultivation, treatment of various diseases, manuring, suitable season for cultivation, and the identification, qualities, importance, usefulness of the herbs, plants and trees in the daily life of human beings.



## CHAPTER IV

# ANIMAL FORESTS AND GARDENS IN ANCIENT LITERATURE

### INTRODUCTION

Forests are the blessings of nature which are considered as an essential and prime factor for the existence of all living beings. It is indescribable that the role of forest in the preservation and development of creating favourable conditions for the existence of life, such as temperature regulation, ecological balance, control of pollution and help in timely rain etc.<sup>1</sup> Besides that, these are the sources of natural food, shelter water etc.

Ancient Indians were very much conscious about the importance of forests and its preservation. According to Indian tradition, the life of man is divided into four stages, that is, *Brahmacarya*, *Gārhasya*, *Vānaprastha* and *Sanyāsa*<sup>2</sup>. Among the four stages of man's life, they spend three-fourth part of their life in the forest because it was customary for them to take shelter in the forest even before completion of the second stage when his health breaks down. Various ancient texts mentioned about this fact,

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<sup>1</sup> *Socio-economic ideas in ancient Indian Literature*, p.318.

<sup>2</sup> *Bṛhmacāri gr̥hasthaśca vānaprastham yathisthadha kṛmeniva śramah̥ prokthaḥ kāraṇādanyadha kūrmapurāṇa bavet, kūrmapurāṇa II, p. 9.*

as described in *Vāmanapurāṇa*<sup>3</sup>, *Kūrmapurāṇa*<sup>4</sup>,  
*Bodhāyanadharmāsāstra*<sup>5</sup> . . . etc.

Ancient Indians were aware of the importance of protection of forests. *Ṛgveda* and *Atharvaveda* had a reference about the importance and utility of forest. The Ancient people invoked certain deities namely, *Marut*<sup>6</sup>, *Agni*<sup>7</sup>, *Parjanya* etc. for the protection of forests from natural calamities like heavy rain, flood, storm, fire etc.

They believed that the decline of forest may lead to the destruction of the earth<sup>8</sup> and they themselves undertook the responsibility of preservation of forest as they were very much concerned about deforestation. They used to plant trees around their houses and provided parks abundant in creepers and trees in their villages.

According to Vedic people, forests were the cause of their prosperity, wealth, long life and health.<sup>9</sup> Therefore they considered protection and maintenance of forests as a pious deed. Moreover, they

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<sup>3</sup> *Vāmanapurāṇa* XIV. vv. 110 – 113, p.319.

<sup>4</sup> *Kūrmapurāṇa*. Purva gaṇḍa, vv. 3 - 2, p. 9.

<sup>5</sup> *Bodhāyanadhramasastra*, Praśna 3, gaṇḍa 2, 2. v. 14, p. 319.

<sup>6</sup> *Ṛgveda* X, 146, v. 5. p. 549.

<sup>7</sup> *Idem*.

<sup>8</sup> *Śivatatvaratnākara* VI, 42-43. vv. p. 321.

<sup>9</sup> *Sarangadharapadhathi*, LXXXII. vv. 1-2

believed that felling of trees in the forest, Garden or in the park as a great offence and sin.<sup>10</sup> Plantation of trees was regarded by them, as the birth of a son who believes in the four objectives of human pursuit (*Dharma*, *Artha*, *Kāma* and *Mokṣa*) and who execute customary rites without any failure such a person is preferred to ten sons. Since protection of one tree is considered as getting ten noble sons. They believed that a person who cultivates or protect garden reaches at *Kailāsa*, the abode of *Śiva*, after his death and his fame pervades to that extent of the next generation apart from spontaneously achieving the four goals of human life. In addition to that ancient people believes that a person who has cultivated a garden around his house lives like a king with his family. *Atharvaveda*<sup>11</sup> mention that the land with plenty of plants, and hills (forests) provides us happiness and prosperity. Similarly *Rgveda*<sup>12</sup> and *Varāhāpurāṇa*<sup>13</sup> deals with some achievements through the protection and planting of trees. According to them the person who protects trees full with flowers and fruits for the sake of other beings, he will definitely attain *mokṣa* at the end of his life.

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<sup>10</sup> *idem.*

<sup>11</sup> *Atharvaveda* XII.v.11. p. 532

<sup>12</sup> *Ibid.* VIII, v. 13.

<sup>13</sup> *Socio economic ideas in ancient Indian Literature*, p. 322.

*Brhadparāśara*<sup>14</sup> *Śārangadharapadhati*<sup>15</sup> and *Śivatattvaratnākara*<sup>16</sup>

elaborately describe the advantages of tree plantation. According to them a person who cultivates some divine trees and herbs will get different blessings from the deities. This kind of description inspired the people to cultivate different types of plants namely *Tulasi*, *Bilva*, *Vāta Aswattha*, *Dhātri*, *Nimba*, *Palāśa*, *Āmṛa*, *Śhīriṣa*, *Udumbara*, *Madhūka*, *Kṣirika*, *Kadali*, *Drākṣa*, *Priyāla*, *Panasa* and *Jambu*, etc.

Ancient Indians had clear knowledge about the favourable season and climate for the proper plantation and cultivation of trees. They identified each kind of plants for its plantation at the suitable season. According to them, branchless trees should be planted in *Māgha* and *Phalgunā* while mini branched plants are in the *Puṣya* and *Margaśīra* and plants with long branches should be planted in *Srāvaṇa* and *Bhādra*.<sup>17</sup> Moreover, they also took into consideration the best astronomical days for the planting trees. For instance, the *Brhadsamhita* of *Varāhamihira*

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<sup>14</sup> *idem*.

<sup>15</sup> *Śārangadharapadhati* VI, vv. 8 - 10. p, 324.

<sup>16</sup> *Śivatattvaratnākara* VI, v. 10 p. 325.

<sup>17</sup> *Brhadsamhita* LV, v. 6, p. 330.

discusses about the list of stars which are suitable for plantation of trees and crops.<sup>18</sup>

According to *Śārangadharapadhati* *Āṣhādhā* and *Śrāvaṇa* are best months for sowing seeds and planting trees; whereas the plantation of creepers in summer should be better.<sup>19</sup>

In addition to that *Śivatattvaratnākara* mention about suitable soil for plantation. According to this work, soil is classified into six types on the basis of its colour and quality. Again, based on the taste, soil is further divided into six.<sup>20</sup>

Moreover, ancient Indians gives a description of suitable and unsuitable land for proper tree plantation. Accordingly, land without sand and thorns and having the proper facility for its growth like fertility, availability of water etc. should be used for planting trees.<sup>21</sup> While certain lands are polluted by poison, which contains stones, ant hills, holes and sands are not favourable for tree plantation.<sup>22</sup>

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<sup>18</sup> Brhadsambita LV, v. 3, 31

<sup>19</sup> *Śārangadharapadhati* VI, v. 66. p. 333.

<sup>20</sup> *Ibid.* VI, v.10, p. 12.

<sup>21</sup> *Ibid.* LXXXII

<sup>22</sup> *Ibid.* LXXXIII

Ancient Indians were well aware of the methods for sowing seeds in the field which show that they had some scientific knowledge about cultivation, identification of cultivable land, sowing seeds and growing the plants.

*Bṛhadsamhita* of *Varāhamihira* mentions about the effective techniques adopted for the enrichment of the fertility of the soil. He suggests that before the tree plantation, seeds of *māṣha* or *tila* should be scattered in the soil so that fertility of the soil will be increased. Afterwards, the sprout of these plants should be removed and then the seeds intended for cultivation be sown in the field prepared for sowing seeds.<sup>23</sup> It also discusses various other methods and techniques of sowing, irrigation, manuring. etc.

Various ancient texts *Śivatattvaraṭnākara*, *Bṛhadsamhita*<sup>24</sup> *Manuṣyālayacandrika*. etc gives details of gardening around the house with numerous essential features including suitable place and layout for a house garden. According to them the construction of garden is not advisable at the south or south-east because it may the cause mental

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<sup>23</sup> op. cit. LV.

<sup>24</sup> *Ibid.* LV.

tension quarrel and ill fate to the members of the family while plantation either at east, north or west sides of the house are beneficial.<sup>25</sup>

People were very much concerned about the selection of seeds based on their quality. Accordingly, they choose some auspicious trees like *Nimba*, *Aśoka*, *Punnāga*, *Śirīṣa*, *Priyangu* etc., which are known as noble trees, for planting. According to *Kāśyapasamḥita* *Aśoka*, *Campaka*, *Punnāga*, *Priyangu*, *Śirīṣa*, *Udumbara*, and *Pārijāta* are the best trees for planting around the house.<sup>26</sup>

Plenty of Sanskrit works discussed plantation of trees and gardening. *Śivatattvarathnākara* mentions about some trees like *Souparṇika*, *Badari*, *Kadali*, *Dādima*, *Bījapūraka*, *Palāśa*, *Kapicara*, *Arjuna* and *Karjura* are trees not suited for plantation around the house.<sup>27</sup>

According to Vedic texts various types of forests are:-

### 1. The *Āraṇya*

It is a calm and quite forest, without any obstacles were war or violence does not take place which is a place where great sages performed their penance.

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<sup>25</sup> *Śivatattvaratnakara* VI, 10, vv. 4 - 5

<sup>26</sup> *Kāśyapasamhitha* LIV, vv. 2 - 3. p. 3330.

<sup>27</sup> *op. cit.* VI-10

## **2. Tapovana**

These type of forests are famous for doing penance and both *Āraṇya* and *Tapovana* are not easily accessible which are surrounded by numerous plants and animals, where the sages, monks. etc. lived in harmony and performed their rituals and sacrifices without any fear (*abhayāraṇya*) or hurdles.

## **3. Mahāvana**

It is a dense natural forest with huge trees and plants, creepers, thick vegetation and undergrowth and well preserved without much human interference.

## **4. Śrīvana**

This types of forests are also known forests which bring prosperity for all producing and supplying certain natural resources namely food, fodder, timber roots, herbs. etc.

## **5. Devavana**

These kinds of forests also known as God's forest consisting of a large number of sacred groves in it.



Besides this classification various other illustrations of forests, mountains, and gardens can be seen in Sanskrit literature which denotes that people in ancient days were closely related with nature which is revealed from their works on literature, philosophy and Science.

Ancient Indians mentions about some animals and the story about their origin while discussing the evolution of man.<sup>28</sup> According to *R̥gveda*, three types of animals were first created by God<sup>29</sup> namely, Sky animals, Forest animals (wild animals) and Domestic animals. *Vāyupurāṇa* also accepted the origin of animals as the creation of lord *Brah̥ma*.<sup>30</sup> *Atharvaveda* deals with five kinds of animals created by God *Rudra*, namely cow, horses, men, sheep and goats.<sup>31</sup> Similarly, *Atharvaveda* mentions about the classification of wild animals.<sup>32</sup> According to *Carakasamhita* animals are classified into eight types such as 1) *Prasaha*, (2) *Bhūśaya* (3) *Ancipa* (4) *Jalaja* (5) *Jalecara* (6) *Jāngala* (7) *Viškira*.<sup>33</sup> An exhaustive list of animals and birds are named in this classification. *Suśruthasamhita* also classifies animals mainly under six

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<sup>28</sup> Bṛhadviṣṇupurāṇa, VIII, p.175

<sup>29</sup> *R̥gveda* 10-90. 8

<sup>30</sup> *Viṣṇupurāṇa*, I, v. 5, p. 75.

<sup>31</sup> *Atharvaveda* XI, v.9

<sup>32</sup> *Ibid.* XII.1. v. 49

<sup>33</sup> *Carakasamhita*. XXVII, vv. 52 - 54, pp. 195 - 196.

types<sup>34</sup> and further, divide them into two types *Jāngala* and *Ancipa*. *Jāngala* is again divided into eight types *Jāngala Viskira*, *Pratudha*, *gr̥hasaya*, *prasāra*, *paṇamṛga*, *vileśaya*, *grāmya*.<sup>35</sup> *Suśrutha* classifies *Āncipa* into five kinds, such as *Kūlacara*, *Plava*, *Koṣastha*, *Pādina* and *Matsya*<sup>36</sup>. *Matsya* is again divided into two types *Nādeya* and *Sāmudrā*

Agriculture and animal husbandry were the main sources of wealth of ancient Indians, both these have flourished simultaneously in India. *Brahmapurāṇa* mentioned about the details of the origin of both agriculture and animal husbandry. According to *Brahmapurāṇa*, both these were invented by the king *Pr̥thu*, son of king *Vena*.<sup>37</sup> Ancient Indians considered animals as an essential part of their life and wealth as well. Therefore they carefully nurtured and protected animals. Descriptions of various types of health care, food habits, gestures, protection methods, diseases, treatments, utilities of some animals like cow, horse, bull, elephant etc. the quality and usage of their urine, dung, milk, leather, bones, tails, hairs etc. can be seen in ancient Sanskrit

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<sup>34</sup> *Suśruthasamhita*, XLVI, p. 326.

<sup>35</sup> *Ibid.* p. 380

<sup>36</sup> *Ibid.* p. 386

<sup>37</sup> *Brahmapurāṇa*, II, vv. 198 - 201, p. 98.

works. Information about some animals based on these characteristic features are listed below.

## Cow

Ancient Indians considered cow as a sacred animal. According to them, the cow is the representative of God *Indra*, the deity of all prosperity and health. Whole parts and products of the cow are useful to human beings, in *R̥gveda*, it is said that this fact was revealed by sage *Bhāradwāja*.<sup>38</sup> *Yajurveda* also mentions about the greatness of cow<sup>39</sup>. *Atharveda* confirms the greatness of in some of its hymns which declare cow as the mother of *Ādityas*, daughter of *Vāsu* and is regarded as the breath (*Prāṇa*), the vital force or spirit of the living beings.<sup>40</sup> Besides that *Atharvaveda* proclaims that one who serve cow carefully he will attain heaven after his death<sup>41</sup> *Agnipurāṇa* compares the nobility of cow to that of river Ganges which purifies and nourishes everything with its compassionate, healing touch.<sup>42</sup> Apart from this cow is compare to

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<sup>38</sup> *R̥gveda* VI. 28.5

<sup>39</sup> *Yajurveda* XXII, 48.

<sup>40</sup> *Atharvaveda* IX, v. 4

<sup>41</sup> *Atharvaveda* XVIII, v. 4

<sup>42</sup> *Agnipurāṇa* CCLXLII, vv. 14 - 22, p. 633.

*kalpavrkṣa*, the wish yielding tree.<sup>43</sup> *Agnipurāṇa* says that a person who carefully take care of the cow will be free from all kinds of sins, the cow-dung and urine is capable of destroying misfortunes and one who consume sacred materials produced from the cow like cow-dung, urine, milk, curd, ghee and *gorocana* will be free from dreaded experiences.<sup>44</sup>

*Padmapurāṇa* also narrates some details about the greatness and value of the cow. In accordance with these statements, it can be said that people at that time considered the house which has no cow as inauspicious.<sup>45</sup>

*Baviṣyapurāṇa* mentioned about five kinds of auspicious cows namely *Nanda*, *Subhadra*, *Surabhi*, *Sūsila* and *Bahula* which had arisen from the milk ocean at the time of churning. According to *Baviṣyapurāṇa*, these five are capable of fulfilling ones desires.<sup>46</sup> *Mahābhāratha*<sup>47</sup> and *Brhadpāraśara*<sup>48</sup> also discussed about the importance and greatness of cow. Both these texts remind us of the necessity of protection and nurturing of cows. *Brhadāranyakopaniṣad* signifies the *triguṇa* concept of

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<sup>43</sup> *Devibhagavadha* IX, .49, p. 156.

<sup>44</sup> *Agnipurāṇa* CCLXLVIII, p. 738

<sup>45</sup> *Padmapurāṇa*, *Sṛṣṭigaṇḍa*, LVII, vv.152 -156, p. 985.

<sup>46</sup> *Baviṣyapurāṇa*, *Uttaraparva* LXIX.

<sup>47</sup> *Mahābhāratha*, *Anusānaparva* LI, vv. 26-34

<sup>48</sup> *Brhadpāraśara*, V, v. 19

the cow, cow- dung represented as knowledge urine represented as *Upaniṣad* and calf represented as *smṛti*.<sup>49</sup>

### **Bull and Bullock**

Bulls are considered as one of the most superior animals in ancient times. *Brhadpārāśarasamḥita* points out that for the sake of agricultural prosperity *Brahma* created Bulls for toiling in the fields, and thereby producing food crops for consumption of people and sustenance of the whole world.<sup>50</sup> While the bulls themselves eat only grass and carry heavy loads without any resistance hence *Brahma* signifies *Dharma* in the form of this animal (Bulls)<sup>51</sup> ancient people reveals that bulls are powerful enough than any deities like *Indra, Varuna, Maruth and Brhaspathi*. They help with food for life to all creatures in the whole world by rearing the fields and help yielding crops for all living beings on earth.<sup>52</sup> Hence ancient texts described the necessity of rearing and protection of bulls.<sup>53</sup> Besides that the ancient people identified the good and bad features and

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<sup>49</sup> *Brhadāranyakopaniṣad*, III, v.12. p. 212.

<sup>50</sup> *Brhadpārāśara*, V-44

<sup>51</sup> *Ibid.*, V-54

<sup>52</sup> *Ibid.*, V-55

<sup>53</sup> *Idem.*

qualities of bulls as explained in *Matsypurāṇa*.<sup>54</sup> *Brhadpārāśara* explains the methods to protect bulls in its fifth chapter.<sup>55</sup>

## Horse

Horses were considered as a very valuable and prosperous animal in ancient times. There are some descriptions in various ancient texts such as *Śivatattvaratnakara*, *Viṣṇupurāṇa*, *Agnipurāṇa* etc. about the horses. Good variety of horses is considered as originating from nectar, eye drops of Brahma, fire, eight deities like *Indra*, eggs, foetus and *Sāmaveda*.<sup>56</sup> *Śivatattvaratnakara* again mentions about four types of horses based on their *Varna*'s, as *Brāhmaṇa*, *Kshatriya*, *Vaiśya* and *Sūdra*. This classification based on their characteristic features like behaviour, nature of food, body, colour, eyes etc.<sup>57</sup> *Arthaśāstra* also deals with 4 types of horses namely, Superior, Medium, Ordinary and Warhorses.<sup>58</sup> These

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<sup>54</sup> *Matsyāpurāṇa*, CCVII, vv. 13 - 26, p. 203.

<sup>55</sup> *op.cit*, V

<sup>56</sup> *Śivatattvaratnakara* VII. v. 12. p. 205

<sup>57</sup> *Ibid*. vv. 14 - 17

<sup>58</sup> *Arthaśāstra*, II, v. 30. p. 211.

warhorses are again divided into three types.<sup>59</sup> 1. Superior, 2. Medium and 3. Ordinary.

Ancient Indians paid attention in protecting horses. *R̥gveda* insists on keeping the horses clean without allowing flies to sit on their body and to give them sufficient green grass and cover them with suitable clothes and ornaments.<sup>60</sup> Besides that *R̥gvedins* reminds us not to do any kind of harm towards horses or kill or taste its flesh because horses are considered as one's wealth, and any person committing such mistake it should be considered as a great sin.<sup>61</sup> *Yajurveda*<sup>62</sup> and *Atharvaveda*<sup>63</sup> prescribes the necessity of protection of horses for battle. *Arthasāstra* gives the details of sheltering, feeding, attention and appropriate treatment to be given to superior horses.<sup>64</sup> According to *Śivatattvarathnākara* the age of a horse can be calculated by examining its teeth.<sup>65</sup>

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<sup>59</sup> *Idem.*

<sup>60</sup> *R̥gveda* 1-162-16

<sup>61</sup> *R̥gveda* 1-162-20

<sup>62</sup> *Yajurveda* IX. 18

<sup>63</sup> *Atharvaveda* XX. 137.3.

<sup>64</sup> *Arthasāstra* II. 30. 4

<sup>65</sup> *Śivatattvarathnākara* VII. 120, p. 215.

## Elephant

Elephants are also considered as a noble animal by ancient Indians. They briefly explain about the origin of some prosperous elephants. *Śivatattvaratnākara* says that the sage *Kaśyapa* had twelve daughters. Out of these twelve daughters. *Bharamudra* gave birth to *Airāvata* and thereafter another daughter *Śatakhyā* gave birth to eight elephants which are considered as the guardians of the eight quarters of the universe. Again another daughter *Mātangi* gave birth to *Mātangas*, and then other elephants were born while the sage *Mātanga* was chanting *Sāmaveda* known as *Samaja*. All these elephants have lived in the heaven and were brought to earth due to the curse of the sage and started living in the dense forests on the earth.<sup>66</sup> Ancient Indians closely studied the peculiar characteristics of elephants, including their, qualities, classification etc. *Viṣṇudharmotharapūraṇa*<sup>67</sup> and *Agnipurāṇa*<sup>68</sup> clearly, defines the special features of elephants. *Arthaśāstra* mentions three kinds of elephants- Superior elephants<sup>69</sup>, Medium elephants<sup>70</sup> and Inferior

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<sup>66</sup> *Śivatattvaratnākara*, VII. v. 11, p. 215.

<sup>67</sup> *Viṣṇudharmotharapūraṇa*, II gaṇḍa XLVIII, vv. 1-15

<sup>68</sup> *Agnipurāṇa*, CCLXXXVII, vv. 1-5

<sup>69</sup> *Arthaśāstra* II. 31. 10

<sup>70</sup> *Ibid.*



elephants

Again they are divided into four types.<sup>71</sup> Based on nature and work assigned to them, such as - tamed elephants, war elephants, elephants used for riding and elephants in rut.

Ancient Indians mentioned about various methods of trapping of elephants and its nourishment, protection etc. According to *Manasollāsa*, there were five methods for trapping elephants. 1. *Vārībandha* 2. *Vasabandha* 3. *Anugathabandha* 4. *Apātabandha* and 5. *Avapatabandha*.<sup>72</sup>

Ancient people paid much attention for the nourishment of elephants and elaborate instructions are given for the nourishment and protection of elephants. To look after the well-being of elephants separate superintendent were appointed for each work<sup>73</sup> *śvatatvaratnālkara* mentions about the ability and use of elephants for various works. Accordingly, it is said that elephants in the age group of 10 to 14 are best for work, while that of 14 to 30 age group are inferior, and elephants above 70 ages are not fit to do any work.<sup>74</sup>

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<sup>71</sup> *Ibid.*

<sup>72</sup> *Ibid.* 2-32-16

<sup>73</sup> *Mānarollasavimśathi*, III. vv. 180-220, p.224

<sup>74</sup> *Śivatatvanatnākara*, VI. vv. 4

Besides these prominent animals, some other animals are also indicated by ancient people such as sheep, goat, camel, donkey, dogs, pigs etc. Sheep and goats, like that of a cow, are harmless animals which eat green grass and provide healthy milk for us, its dung used as a manure for increasing the fertility of the soil and thereby enhancing the production of crops. *R̥gveda*<sup>75</sup>, *Atharvaveda*,<sup>76</sup> *Taittirīyabrāhmaṇa*<sup>77</sup> and *Śatapatabrāhmaṇa*<sup>78</sup> gives an account of sheep and goat.

In *Carakasamhita*<sup>79</sup> and *Suśruthasamhita*<sup>80</sup> there is a reference to ten qualities of cow milk. *Carakasamhita* identified Buffalo milk as much harder and cooler than cow milk which helps to destroy gastric fluid and helps to provide sound sleep.<sup>81</sup> *Bhāvaprakāśa* also mentioned about some qualities of Buffalo milk.<sup>82</sup> According to *Suśruthasamhita* camel-milk

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<sup>75</sup> *R̥gveda*, I, 138. v. 2

<sup>76</sup> *Atharvaveda*, XX. 24. 55

<sup>77</sup> *Taittirīyasamhita*, III, v. 3, p. 140.

<sup>78</sup> *Śatapakbrahmaṇa*, IV. 5. 5. 6.

<sup>79</sup> C.S. XXIV. vv. 82 - 83, p. 216.

<sup>80</sup> *Bhāvaprakāśa*, p.90

<sup>81</sup> *Carakasamhita* XXVII. p. 209.

<sup>82</sup> *idem*.

have the quality to cure leprosy.<sup>83</sup> Similarly, *Sūśrutha* suggested that goat milk can destroy all kinds of fever.<sup>84</sup>

*Ṛgveda*<sup>85</sup> and *Yajurveda*<sup>86</sup> mentions about camel and donkey employed for drawing carts and transporting heavy loads to different places. Besides that dogs and pigs are also mentioned in their works. Dogs are used for protecting and guarding cattle and horses from thieves and other harmful animals. Pig or *Varāha* helps peoples to keeps the ground clean and pure. The quality and use of milk products of different animals as that of the milk of cow and the quality, use and application of their urine, dung, leather, bones, horns, hairs etc. are elaborately discussed in *Carakasamhita*.<sup>87</sup>

## Urine

*Sūśruthasamhita* mentions about 8 types of urine.<sup>88</sup> This urine is capable of curing various kinds of diseases like *vāta*, *kapha*, abdominal diseases, *kuṣṭa*, *pānduroga* etc. *Carakasamhita* also refers to certain

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<sup>83</sup> *Suśrutha samhita* XLV. v. 53, p. 335.

<sup>84</sup> *Ibid.* v. 54, p. 336.

<sup>85</sup> *Ṛgveda* 1.138.2

<sup>86</sup> *Yajurveda* XXIV. 23, p. 310.

<sup>87</sup> *Carakasamhita*. Sūtrastāna I. v. 110. p. 47.

<sup>88</sup> *Suśruthasamhita*, XLV. 217, v. 217.

characteristic features of various animal urine.<sup>89</sup> Urine of cow has the medicinal value to cure some diseases of the skin, intestine, mouth and eye remove certain harmful germs in the stomach. *Harithasmṛithi* also points out this fact in its first chapter.<sup>90</sup>

*Agnipurāṇa* examines in great detail the medicinal properties of cow milk which are used for the recovery from some diseases of the tongue<sup>91</sup> and madness.<sup>92</sup> Moreover, it describes the usage of the urine of the cow for stomach ailments of horses.<sup>93</sup> Similarly, *Suśruthasamḥita* and *Rājanikhaṇḍu* precisely examines the advantage of urine of Buffalo.<sup>94</sup> According to this works Buffalo urine helps to destroy polypus, leprosy etc. description of urine of horse, elephant, she-goat, sheep, camel and donkey can also be seen in various other ancient works, like *Suśruthasamḥita*, *Rājanikhaṇḍu*, *Carakasamhita* etc.

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<sup>89</sup> *Harithasmṛithi* IX. p.82

<sup>90</sup> *Agnipurāṇa* CCLXXXIII. v. 10, p. 492.

<sup>91</sup> *Ibid.*CCLXXXVII, v. 8, p. 509.

<sup>92</sup> *Ibid.* CCLXXIX, v. 42, p. 423.

<sup>93</sup> *Socio economic ideas in ancient Indian literature* p.84.

<sup>94</sup> *Rājanikhaṇḍu* p.85

## **Cow Dung**

Agnipurāṇa mentions about various advantages of cow dung. In ancient times consumption of cow dung at ritual ceremonies were considered as virtuous or auspicious deed.<sup>95</sup> It is also used to get rid of harmful flies and for the purification of house and its surroundings.<sup>96</sup>

## **Forest animals**

Besides these domestic animals, ancient people gives a description of certain wild animals such as Lion and *Vṛka*. These animals are mentioned as fierce and aggressive wild animals because their habit of attacking and torturing other living beings. In Vedas, frequent prayers can be seen for protection from such wild harmful animals.

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<sup>95</sup> *Agnipurāṇa*, CCCXXVII, v. 6.p. 85.

<sup>96</sup> *Common life in the Ṛgveda and Atharvaveda*, Punthipatak, Calcutta, 1977.

## CHAPTER V

### ***BĀṆABHAṬṬA***

Sanskrit literature is broadly divided into three types, that is *Gadhya* (Prose) *Padhya* (Poetry) and *miśra* (mixture of Prose and Verse)<sup>1</sup>. It is said that prose originated more or less in the vedic age. The *Taittirīya* branch of black *Yajurveda* is regarded as the oldest model of prose literature in Sanskrit.<sup>2</sup> Similar ancient prose types could also be found in the later *Atharvaveda* descriptions of rites related to the performance of *yāga* (holy sacrifices). Examples for prose literature in Sanskrit are abound in the epics as well as in the legends.<sup>3</sup>

During the classical age the authors of *Vyākaraṇa*, *Vedānta*, *Mīmāṃsā*, *Nyāya*, *Vaiśeṣika*, *Arthaśāstra*, *Kāvyaśāstra* etc. and the commentators adopted prose in their commentaries and explanation of episodes in different prose style in the form of *sūtras* and explanations.

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<sup>1</sup> *Kāvyaśāstra* I, v. 11. p.14

<sup>2</sup> *Bāṇabhaṭṭa a literary study*, Neeta Sharma, Munshiram Manoharlal, Delhi, 1968. p. 1

<sup>3</sup> *Ibid.* pp. 1 - 16

Prose *kāvya* is divided mainly into *Kathā* (story) and *Ākhyāyika* (novel).<sup>4</sup> Rhetoricians like *Bāmaḥa*, *Daṇḍi*, *Rudraṭa*, *Vāmana*, *Visvanātha*, *Kṣhemendra* and *Rājasekhara* have discussed in detail about prose writings. *Kathā* (story) is comprised of imagination and fantasy where as in *Ākhyāyikā* the hero, himself or somebody else should be the narrator. Poems shall be in the metres of *Vaktra* or *aparavaktra*. Abduction of maidens, war, seperation of lovers and elevation of the hero should form the content. Further, there should be divisions as *ucchāvasas* (chapters).<sup>5</sup>

Though rhetoricians and poets mention several literary works in prose many of them are not available to us and among the remaining works those written by *Daṇḍi*, *Subandhu* and *Bāṇabhaṭṭa* are considered as popular and praise worthy.

### ***Harṣacarita***

The historical fiction ***Harṣacarita*** is written by *Bāṇabhaṭṭa*, an eminent literary figure in Sanskrit. Unlike many ancient Sanskrit writers *Bāṇa* gives us a detailed account about his birth place, clan and time in the work. Besides, he provides details about the works of his predecessors,

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<sup>4</sup> *Kāvyaḍarśa* I, v. 22, pp.24

<sup>5</sup> *Ibid.* I,v. 26, pp.26.

the qualities of sublime verse, and the possibility of difference in the style of writing depending on different regions. Such references throw light on the history of Sanskrit literature as well as other branches of learning in Sanskrit before and during the time of *Bāṇabhata*.

The book comprises of eight *ucchvāsas Bāṇa* gives an account of his life in the first chapter. This chapter by name “*Vatsyāyanavamsāvarṇanam*” begins with the detailed description of his clan. Once while all the gods assembled at Brahma’s abode *samagaṇa* sage *Durvāsa* happen to commit a mistake. Little *Sārasvati*’s mockery made the sage angry who in turn cursed the girl to live in the mortal world.

Father *Brahma*’s appraisal was that she could return once she give birth to a son on the earth Goddess *Sarasvati* made an abour on the bank of river *Hiraṇyavāḥa*<sup>13</sup> and lived there. Once *Datīchi* son of sage *Chyavana* on an occasion of his tour accidently met her and fell in love with her and married her. After getting united, *Sarasvati* gave birth to a son and returned to the world of gods. *Datīcī* proceeded for penance after entrusting their son *Sārasvata* to his sister in law *Akṣamāla*. *Akṣamāla* brought him up along with her son *Vatsa*. *Sārasvata* became a scholar with his mother's blessings. He went to his father to embrace penance



after imparting cognizance to *Vatsa*. *Vatsa* in due course established his lineage.

*Bāṇa* passes on to record the line of his pedigree. *Kubera* takes birth in the *Vātsyāyana* clan. His four sons were *Acyuta*, *Eśana*, *Hara* and *Pāśupata*.<sup>6</sup> *Arthapati* is born to *Pāśupata*. *Bāṇa* is born to *citrabānu*, the eighth son of *Arthapati*.<sup>7</sup>

*Bāṇa* faces the misfortune of losing his mother *Rājadevi* in his early childhood. He learnt different *veda*, *vedāṅga* and the *sāstra*'s under the affectionate tutelage of his father. Unfortunate *Bāṇa* lost his father also when he turned fourteen. Left alone, *Bāṇa* gave himself to wanderings in the company of few friends. The different phases of human life he witnessed during his travels and his contact with live nature enriched his experience and knowledge. Then he returned to his native place.

There is no exaggeration if one considers *Harṣacarita* as an unrivalled work in Sanskrit literature. *Bāṇabhaṭṭa* portrays the social, cultural and religious aspects of life during his time through the description of human life portrayed in the work. *Bāṇa* says that the people

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<sup>6</sup> *Harṣacarita of Bāṇabhaṭṭa* (ed.) P.V. Kane, Motilal Banarsidas Publishers, Delhi, 1965. I, p. 18

<sup>7</sup> *Ibid.* p. 19

experienced heavenly peace and prosperity during the reign of *Puṣyabhūthī*. It throws light on the system of governance during the age. Injustice calamities, diseases, intermingling of races – all were kept away from the country.<sup>8</sup> *Bāṇa* gives an account of conquests, travels of *Prābhākaravardhana* born in the same lineage, bringing back the golden age to memory.

The description of *Yaśovatis* vision in dream points that people at that time believed in omens.<sup>9</sup> *Harṣavardhana* has a dream about the illness of his father.<sup>10</sup> Likewise his brother *Rajyavardhana*'s death is also seen in a dream.<sup>11</sup> The arrival of an astrologer at the time of the birth of *Harṣavardhana* is another instance.

*Bāṇa* describes the system of education, religion customs and ceremonies prevalent at that times with minute details. It can be presumed that women were not given education. *Rājyasree* had knowledge of dance and music. Much importance was given to education, is evident from the statement that the *Brāhmin* of *Prītikūda* were able to get higher

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<sup>8</sup> *Ibid.* III, p. 45

<sup>9</sup> *Ibid.* IV, p. 58

<sup>10</sup> *Ibid.* V, p. 74

<sup>11</sup> *Ibid.* VI, p. 98

education.<sup>12</sup> *Bāṇa* refers matters of education while talking to his friends and relatives. It is clear from *Bāṇa* that *vedas*, *vedangas*, philosophy and drawings were topics of study during that period. He gives accounts of different rituals and ceremonies. After describing *Yaśovati*'s pregnancy, care and connected rituals, *Bāṇa*, elaborately relates the birth of the prince and the celebration that follow. Likewise the description of the marriage celebration of *Rājasree* is a picturesque description done by *Bāṇa*. The author praises religious customs and performances. In addition women of that age liked luxuries and kept passion for ornaments. He describes ornaments like ear rings, *ekāvali*, *hāram* and *ketakam*, mode of wearing them during the period is also narrated.

Women more or less enjoyed high status in society *Yaśovati* and *Rājasree* prove it beyond doubt. *Yaśovati* an amalgum of all finest qualities, is portrayed with a mirror like clear nature. *Prābhākaravardhana* used to give her sufficient respect. The King is seen taking the opinion of *Yaśovati* in detail regarding the marriage of *Rājasree*. It was only with her consent the King finalised the decision. Yet *Yaśovati* always wished to live under her husband's control. Birth of girl child was not celebrated as

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<sup>12</sup> *Ibid.* IV, p. 67

much compared to that of the other sex as it is today because the girls take birth with concomitant anxieties. Child marriage seems scarce but polygamy was prevalent, remarriages were not permitted to widows. Women were ready to do Sati though not imposed. Using veil was forbidden to women though some belonging to higher origin used veils.

There will be none better than *Bāṇa* who comprehended the changing states of hum life. *Bāṇa* proves through his book that death is beyond description as life is. When *Bāṇa* reaches the death bed of his father. There were death signs on the whole body of *Prābhākaravardhana*. In no other Sanskrit book one can see such simple precise description of death.

*Bāṇa* relates every fact to the honoured contemporary, King *Harṣavardhana*. He always endeavoured to attach an epic dimension to King *Harṣavardhana*. Even though *Puṣyabhūti* is penned as a heroic autocrat. As per available stone inscriptions he is a ruler of a small territory having little significance. *Bāṇa* did not approve this because he wanted to reciprocate the recognition *Harṣavardhana* gave to him by taking him by taking his status to the pinnacle similar to that of an epic hero.

*Bāṇa* moves on to *Prabākaravardhana* without referring to the successors of *Puṣyabhūti*. Similarly *Bāṇa* rather neglects brother *Rājyavardhana*'s importance while proceeding with the sole aim of praising the greatness of King *Harṣavardhana*. The attitude of the author to this end need not be considered as a flaw. Circumventing history for ornamental excellence to an extent can be excused. Whether it be the description of his own genealogy in the first chapter or that of *Harṣavardhana* in the third it may seem that *Bāṇa* has outstepped the realities in favour of heroic delineation the author overlooks the names of *Daticī*'s brothers in the third chapter. *Yaśovatis* brother *Bhaṇṇi*'s name is also omitted. No details are recorded about the *Māḷava* king killed by *Rājyavardhana* or the assassins of *Rājyavardhana*. *Harṣacarita* defies the criteria we attach to a historical novel. We can't find fault with *Bāṇa* on this account, for in the beginning itself *Bāṇa* has stated he is incapable of portraying the comprehensive history of *Harṣavardhana*. Above all the ultimate goal of the author was to eulogise the King's greatness with due attention to the *rasas* *Vīram*, *Bhayānakam*, *Karuṇam* and *Adbhutam*. We are indebted to him for including some historical facts in the work. Moreover, the portrayal is done in the literary style which time the

warranted. *Bāṇa* was not a historiographer of today's proportion. The subjects of the country, including *Bāṇa*, considered the king as somebody who moved like a superhuman character with epic dimension. He has heroic epic warrior qualities like *Paraśurāma* or *Bhīma*. As a result he concludes the story at an auspicious juncture after describing the greatness of King *Harṣavardhana*. This can't be concluded as an extensive historical account. Rather *Bāṇa* bares social background of an age. The outlooks of Buddhism and Jainism, the intermingling of caste systems the rare reflections on the inter relation between nature and man, change of seasons, the shining sun and blossomed lotuses, the moon blanched nights, the ripened corn spikes, dense wilderness, the varied sights of *āśrama* life – all these blend in *Bāṇabhaṭṭa's Harṣacarita*. In short the observation 'bāṇociṣṭam jagatsarvam' finds true meaning in *Harṣacarita*.

### **KĀDAMBARĪ**

*Kādambarī* a poem in prose in praise of eternal love which extended to a series of birth and rebirth proves beyond doubt that *Bāṇabhaṭṭa* is a unique gift to Sanskrit literature. The theme of *Kādambarī* is selected from "Bṛhatkathā" of *Guṇādyā* written in

*paisāchi* language. Eventhough, unfortunately the book is not available today, the book *Bṛhadkathāślokaśaṅgraham* (*Buddhasvāmin*, 8<sup>th</sup> or 9<sup>th</sup> century AD) *Bṛhadkathāmañjari* (*Kṣemendra* 11<sup>th</sup> AD) and *Kathāsaritsāgaram* (*Somadeva* 11<sup>th</sup> AD) are available today. This story is taken from the aforesaid *Bṛhadkathā* for writing the work *Kādambari*. Unfortunately *Bāṇa* died before completing the work. Later his son *Bhūṣaṇabhaṭṭa* (*Pulindabhaṭṭa*) completed the work. Hence the book is divided into *pūrvabhāga* (earlier part) by *Bāṇabhaṭṭa* and *uttarabhāga* (latter part) by *Būṣaṇabhaṭṭa*.

The geneology of *Bāṇabhaṭṭa* is given at the beginning of the work. The metre for used the verses are *vamśastha*. After twenty ślokas, the author switches to prose style. The story begins with the depiction of the qualities of *Śūdraka*, a king who ruled his kingdom on the banks of river *Vetrāvati*, with *Vidiśa* as capital. A *chaṇḍāla* maiden appears in the palace with a caged parrot. The maiden presents the king the parrot named *Vaiśampāyana* which knew all *śāstras vedas* and *vedic* scriptures. The distinguished parrot *vaiśambāyana* salutes the king with a verse in *āryā*

*vr̥tta*.<sup>13</sup> Becoming curious, the king enquires about its past and then starts the story of *Kādambarī*.

*Bāṇabhaṭṭa* who is having clear insight into the emotional and psychological complexities inherent in human nature always tried to delight the readers who are caught in the mundane, monotonous perplexities of earthly life by bathing them in the astonishing multi coloured sights of the imaginary world. *Kādambarī* the classical work stands a proof to this.

Even though *Bāṇabhaṭṭa* accepted *Guṇādhyas Bṛihatkatā* as the plot, he made slight changes in the story. *Bāṇa* turned *Kādambarī* into an enchanting classic with a sense of keen observation and imagination. *Bāṇa* portrayed the peculiar social and cultural background of his age in *Kādambarī* as in *Harṣcarita*.

King *Śūdraka*'s palace is beautifully portrayed in the beginning. He attributes all the great qualities of a King in *Śūdraka*. The author points to the system of good governance with reference to the existing concepts as described in literature arts and science through *Sūdraka*. He

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<sup>13</sup> *Kādambari of Bāṇabhaṭṭa* 'ed', Acharya Shesharya Sharma, Chaukhamba Subharatm Prakashan, Varanasi, 2005. p. 39.



describes various literary compendiums like *Akṣharachyutaka* (change in meaning by omitting one letter) *Mātrācyutaka* (change by omitting a syllable) *Bindumatī* (using points only for letters) *Gūdachathurṭhapādam* (concealing letters of fourth line of a verse in other lines).

*Bāṇa*'s unique skill in characterisation is clearly visible in *Kādambarī*. The prevalent caste system is revealed through the characterisation of the *chaṇḍāla* maiden. He makes birds and animals his characters as we see in folktales. The parrot *Vaiśampāyana* controls the story throughout. Moreover, *Bāṇa* candidly depicts *Kālindī*, a myna and *Parihāsya*, a parrot entangled in petty love quarrel. The depiction of the Vindhya forests in *Kādambarī* alone is a doubtless testimony to the nature loving *Bāṇa*'s uncanny ability to invoke the varied expression of nature. He succeeds to picture the unequalled splendor of forest, its tranquility and its silent music as if in a photograph.

*Bāṇa* reveals that other living beings also have thoughts and emotions as that of humans. *Vaiśampāyana*'s father, the aged parrot, tries to conceal the little son under his wings even where parting with his life. Female elephants run hither and thither with claws in when they were made

to run for their lives fearing attack from hunters and frantically searching the lost new born calves in every nook and corner bring tears into our eyes with striking portrayal of animal life. *Bāṇabhaṭṭa* firmly believes that all living beings on earth share an indivisible bond the loss of one is to effect the other harmfully. His denunciation of human selfishness and thoughtlessness is given vent through *vaiśampāyana*'s soliloquy on the chief of the *Śabara* army.

*Baṇā* possesses in depth knowledge about the different levels of human life. That is why he could depict the grandeur of city life and tranquility of *āśrama* life as well. *Bāṇa* gives elaborate account of the routine of kings, their daily duties and functions, the education given to them and martial arts undergone by them.

He had dreams about the upliftment of women. The gentle attitudes of *Vilāsavati* and Manorama and *Kādambari*'s propriety and self control in her dealings with *Candrāpīḍa* suggest the status of women at that time. *Bāṇabhaṭṭa* was against bad customs like sati. Divine voice intervenes when *Mahāśvetā* and *Kādambari* attempt self immolation. The dialogue between *Mahāśveta* and *Chandrāpīḍa* also can be drawn as proof. Similar situations and observations can be seen in *Harṣacarita* also.

*Kādambarī* is like a rainbow, amazingly multi coloured, comprising of superhuman characters and multiplicity of imaginative incidents. Sages who know through the past, present, and future and divine characters like Goddess Lakshmi become object of narration to *Bāṇabhṭṭa*'s pen. Bāṇa points to the popular beliefs in others in *Kādambarī* as in *Harṣacarita*. The dreams about the births of *Chandrāpīḍa* and *Vaisampāyana* can be traced as examples. Curses and divine voices also stand as examples.

CHAPTER VI  
**THE BIODIVERSITY PORTRAYED IN  
*HARṢACARITA***

Ancient Indians considered nature as an integral part of their life, hence they were very much interested in observing and studying each phenomena of nature in order to realize its impact on human life. As a result there developed a deep knowledge about nature which are reflected in their literary works also. Works of Prominent writers like *Bāsa*, *Kālidāsa*, *Bhavabhūti*, *Māgha* and *Bhāravi*, Bāṇa etc. clearly are the testimonials to this fact.

Like these prominent writers *Bāṇabhaṭṭa* also successfully illustrate various types of natural phenomenon without any kind of exaggeration in its originality. *Bāṇabhaṭṭa* who unfortunately had lost his parents at very at his early age. After completing his formal education as was the practice at that time, he was leading wandering life with his friends. The experiences acquired by him during this period helped him to achieve the knowledge about the various phases of human life and made him well awareness of worldly affairs. Above all, he was a great lover of nature, had clearly

observed even the minute details about various aspects of nature and described perfectly this phenomenon in his works with vividly.

Even though *Bāṇa* was a particular skill in the usage of embellished language, he profoundly depicted the whole phenomena of nature including their flora and fauna in a very picturesque manner.

*Bāṇa* never fails to elucidate delightful views of nature with its minute details. He presents before us a clear picture of dense forest with sufficient illustrations of attractive fragrance of flowers, tremendous trees, silent creepers, sweet music of intoxicated birds, groaning sound of flies, ruminating sound of different kind of deers and uproarious shouting of wild animals etc. He describes about huge amount of trees, shrubs, and medicinal plants

अथ क्रमेण गच्छत एव तस्य अनवकेशिनः कुङ्मलितकर्णिकाराः प्रचुरचम्पकाः  
स्फीतफलेग्रह्याः, फलभरित नमेरवः नीलदलनलनारिकेलनिकराः ----.<sup>1</sup>

Through this description *Bāṇa* gives a brief account of knowledge about different kinds of flora and fauna which existed at that time.

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<sup>1</sup> *Ibid.*, VII pp.832.

Similarly *Bāṇa* demonstrates his thorough knowledge about some wild grains and certain agricultural details along with the description of a forest village in *Harṣacarita*. Here *Bāṇa* explained some ancient types of tiger traps, drinking arbours, huge banyan trees surrounded by cowsheds made of dry branches of trees, harvest lands and fertile black soil and certain fields with abundant crops, beautiful flowers and the inhabitants of the village. ie.

‘अथ प्रविशन्दूरादेव दह्यमानषष्टिकबुसविसरविसारिविभावसूनां  
वन्यधान्यबीजधानीनां धूमेन धूसरिणमादधानैः  
शुष्कशाखासंचयरचितगोवाटवेष्टितविकटवटैः---”<sup>2</sup>

*Bāṇa* shows great enthusiasm to describe the natural portrayal of nature with more and elaborate explanations of its abundant resources. While giving the exposition of king *Śriharṣa* he gracefully discloses about the wealth of the *Janapadas* of *Śrikanṭha* with their plentiful crop production of rice and wheat and lots of cows, buffaloes and groups of camels etc. In his explanations *Bāṇa* gives an account of the precautionary measures taken by ancient Indians to protect their wealth, cattle and crops.

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<sup>2</sup> *Ibid.* VII, p. 809

‘अस्ति पुण्यकृतामधिवासो वासवावास इव वसुधामवतीर्णः  
सततमसकीर्णवर्णव्यवहारस्थितिः कृतयुगव्यवस्यः स्थलकमलबहलतया  
पोत्रोन्मूलयमानमृणालैः उदगीतमोदिनीसारगुणैरिव  
कृतमधुकरकोलासारहलैरुल्लिख्यमानक्षेत्रः---<sup>3</sup>

Moreover *Bāṇa* draws an attractive picture of life, the life of peace, unity, love serenity and affection at the hermitage of the sage *Divākaramiṭra* with the fearless gestures of innocent Deers, and obedient lions sitting beside *Divākaramiṭra* and certain brilliant monkeys and some birds helping in their performance of religious deeds.

‘अथ तेषां तरूणां मध्ये नानादेशीयेः स्थानस्थानेषु स्थाणूनाश्रितैः  
शिलातलेषूपविष्टैर्लताभवनान्यध्यावसद्भिर्रण्यनीनिकुञ्जेषु----- " <sup>4</sup>

Similarly *Bāṇa* narrates his life along with his relatives, here also the author extensively nourishes his dexterity to illustrate the elaborate divine qualities pertaining to *vedic* heredity. He describes the sacred atmosphere with incessant invocations of *vedic* hymns and numerous student memorizing various kind of *vedic* hymns, and birds like parrot and myna repeating the hymns they memorized by hearing the same. He also refers to certain religious sacrifices utilized with different flowers, *nīvāra* rice, *śyāmāka* and *kuśa* grass.

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<sup>3</sup> *Ibid.* III, pp. 258 - 259

<sup>4</sup> *Ibid* VIII. p.738

‘अथ तत्रानवरताध्ययनध्वनिमुखराणि, भस्मपुण्ट्रकपाण्डुरललाटैः

कपिलशिखाजालजटिलैः कुशानुभिरिव क्रतुलोभागतैर्बटुभिरध्यास्यमानाति--- ‘<sup>5</sup>

From the statements of Bāṇa we could understand the fact that people at that time were very much aware of the peculiarities of the living beings including their characteristic trait and other special features. They clearly recorded the peculiarities of certain animals based on their locality family, class, colour, gestures. etc. For instance in the second *ucchvāsa* of *Harṣacarita* he names different kinds of horses namely *Vanāyu*, *Arāṭṭa*, *Kāamboja*, *Bhāradvaja*, *Sindh* and *Persia* which were brought from different places, along with the description of a stable (*Āśvalaya*). He gives an elaborate account of their colour and other specific features based on the five auspicious marks with respect to their chest, back, face, eyes and flanks etc.

‘अथ वनायुजैः, आदृजैः, काम्बोजैः, भारद्वाजैः, सिन्धुदेशजैः, पारसीकैश्च, शोणेश्च  
, श्यामाश्च, श्वेतैश्च, पिञ्जरैश्च, हरिद्भिश्च, तित्तिरिक्लामाषैश्च, पञ्चभद्रैश्च--‘<sup>6</sup>

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<sup>5</sup> *Ibid* II p.125.

<sup>6</sup> *Ibid* p.165.



Similarly in the description of *Harṣa*'s favourite elephant, Which is considered as the external heart of *Harṣa*, *Bāṇa* exhibits his erudition about elephantology pointing out certain characteristic features of this elephant along with the keen observation of various aspect such as its red spots on its skin, flapping ears, spirituous scent of the ichor, long and huge body with sportive oscillation on his three feet, long trunk, and thick sharp teeth.

‘ गत्वा च तं प्रदेशं दूरादेव गम्भीरगलगर्जितैर्वियतिचातककदम्बकैर्भुवि च  
 भवननीलकण्ठकुलैः कलकेकाकलकलमुखरमुखैः क्रियमाणकालकोलाहलम्  
 अविरलमधुबिन्दुपिङ्गलपद्मजालकीनां सारसीमिवात्यवगाढां दशां  
 चतुर्थीमुत्सृजन्तम्---

अनवरतमवर्तसशङ्खैरामन्द्रकर्णतालदुन्दुभिध्वनिभिः पञ्चमीप्रवेशमङ्गलारामिव  
 सूचयन्तम्---- ‘<sup>7</sup>

Ancient Indians considered nature as an integral part their part of life, hence they tried to respect, love nurture and co-operate with nature without causing much danger to its natural features and existence. They tried to protect each and every kind of substance of nature with much ardor. We could find from the descriptions of nature several huge trees, chirping sound of birds, sweet smell of beautiful flowers etc. The people made use of different kinds of natural substance in their everyday life and planted lots of plants and trees in the surroundings of their habitat and were interested in developing gardens nearby their residence. The

<sup>7</sup> *Ibid* II p.170.

surroundings of royal palaces were beautified with different kinds of flowering plants and trees such as *Karṇikāra*, *Kuśa*, *Kuṭaja*, *Kadamba*. etc, and birds like parrot, cuckoo, peacock, pigeon and animals like elephants, cattles, horses, troops of camels, deers, etc. were nourished by them

‘ निर्वर्तितस्नानाशनव्यतिकरो विश्रान्तस्य मेखलकेन सह याममात्रावशेषे दिवसे  
भुवतवति भुभुजि प्रख्यातानां क्षितिभुजां बहूञ्शबिरसंनिवेशान्वीक्षमाणः  
पट्टबन्धार्थमुपस्थापितैश्च ---”<sup>8</sup>

Frequently the nature stimulate the slender feelings and emotions in human beings with its gentle touches along with its variegated pigments, soft and sweet music and pleasant fragrant and also with its amazing forests, trees, creepers, flowers, lakes, intoxicated birds, humming bees and attractive variegations of early dawns, moon rise, sunset and sunrise.

He mentions *lotus*, *lāngalikas*, *crance*, *Tamāla*, *Puṇḍarīka*, *Kalhāra*, *Uṭpala*, *Ketaki*, *Mālati*, *Bakuḷa*, *Kakkola* fruits, *cloves*, *Pārijāta*, *Kadamba*, *flowers* and *caphara* fishes, etc.

‘अथ मुहूर्तमात्रमिव स्थित्वा च तां तस्य रूपसंपदं पुनःपुनर्व्यस्मयितास्या  
हृदयम् ।-----विघटमानचक्रवाकयुगलविसृष्टैरस्पृष्टापि श्यामतामाससाद  
विरहनिःश्वासधूमैः ।पुष्पधूलिधूसरैरदष्टापि व्यचेष्टत मधुकरकुलैः’<sup>9</sup>

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<sup>8</sup> *Ibid* II p.125.

‘अपश्यच्चाम्बरतलस्थितैव हारमिव वरुणस्य, अमृतनिर्झरमिव चन्द्राचलस्य ,  
शशिमणिनिष्यन्तमिव -----अभिनन्दितवचना च तथेति तथा तस्य पश्चिमे तीरे  
समवातरत् । एकस्मिंश्च शुचौ शिलातलसनाथे तटलतामण्डपे गृहबुद्धिं  
बबन्ध ।’<sup>१०</sup>

‘एवमतिक्रामत्सु दिवसेषु गच्छति च काले याममात्रोद्गते च रवावुत्तरस्यां  
ककुभि प्रतिशब्दपूरितवनगह्वरं गम्भीरतरं तुरङ्गहेषितह्लादमश्रुणोत् ।---”<sup>11</sup>

*Bāṇa* always tried to reveal minute details of his depictions, with his keen observation skill and great enthusiasm and narrative skill. In fact he was very fond of ornamentation, but his illustrations never lack reality. Moreover he was a great lover of nature; he realized the fact that the unparalleled beauty and fragrance of nature could reconcile with the intensity of each sentiments, feelings and ideas of humanity. Therefore he carefully delineated different shades of natural events with his own magnificently eloquent style.

*Bāṇa* clearly pointed out the fact that nature helps to reflect the feelings of human beings.

‘ एवमतिक्रामत्सु दिवसेषु गच्छति च काले याममात्रोद्गते च रवावुत्तरस्यां  
ककुभि प्रतिशब्दपूरितवनगह्वरं गम्भीरतरं तुरङ्गहेषितह्लादमश्रुणोत् ।---”<sup>12</sup>

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<sup>9</sup> *Ibid* II p.125.

<sup>10</sup> *Ibid*.II p.56.

<sup>11</sup> *Ibid*. II p.58.

<sup>12</sup> *Ibid*. IV p.426 .

Similarly *Bāṇa* beautifully delineates the sunset and a blanched moon rise with suitable embellishment along with the description of *Brahmaloka*.

‘अथ सकलकमललक्ष्मीवधूमुख इव संचार्य समवसिते वासरे ,  
विवाहदिवसश्रियः पादपल्लव इव रज्यमाने सवितरि ,  
वधूवरानुरागलघूकृतप्रेमलज्जितेष्विव विघटमानेषु चक्रवाकमिथुनेषु,  
सौभाग्यध्वज इव रक्तांशुकसुकुमारवपुषि नभसि स्फुरति संध्यारागे।’<sup>13</sup>

Similarly *Bāṇa* reveals a sad sunset after the death of *Prabhākaravardhana* (the king of *Sthaṇīśvara*) with some descriptions suitable for the occasion.

‘अत्रान्तरे सरस्वत्यवतरणवार्तामिव कथयितुं मध्यमं लोकवततारांशुमाली।  
क्रमेण च मन्दायमाने मुकुलितबिसिनी विसरव्यसनविषण्णसरसिवासरे---”<sup>14</sup>

A painful morning also is narrated by him in the same manner.

‘ततः शुचेव मुक्तकण्ठमारटत्सु कृकवाककुलेषु  
,गृहगिरिततरुशिखरेभ्यपातयत्स्वात्मानं मन्दिरमयूरेषु---”<sup>15</sup>

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<sup>13</sup> Ibid. I p.42

<sup>14</sup> Ibid. V p.519

<sup>15</sup> Ibid. II p.56

Besides that *Bāṇa* adds certain allusions to the death of *Prabhākaravardhana*.

‘देवोऽपि हर्षः पुञ्जीभूतेन सकलेनेव जीवलोकेन लोकेन राजकुलसंबद्धेनाशेषेण  
शोकमूकेन परिवृतोऽन्तर्वर्तिनि शोकानलतप्तने---”<sup>16</sup>

He profoundly discloses every attractive glories of nature with brief account of explanations about certain flora and fauna in a picturesque manner while giving an account of the attractive sights of a beautiful place near the banks of *Mandākinī* river with sweet smell of various flowers, huge trees having stocks of bees on them and with heaps of pollen.

‘अपश्यच्चाम्बरतलस्थितैव हारमिव वरुणस्य, अमृतनिर्झरमिव चन्द्राचलस्य,  
शशिमणिनिष्यन्तमिव विन्ध्यस्य, कर्पूरद्रुमद्रवप्रवाहमिव दण्डकारण्यस्य---”<sup>17</sup>

Ancient Indians were very much attracted by the unrivalled beauty of nature, they are excessively influenced by the fluent pursuit of rivers and its murmuring sound. This kind of attitude is reflected in the description of *Bāṇa*'s works, this fact is undoubtedly elucidated by the illustration of the steady pursuit of river Ganges

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<sup>16</sup> Ibid. V p. 58

<sup>17</sup> Ibid. V. p. 55.

‘ ततः क्रमेण ध्रुवप्रवृत्तां धर्मधेनुमिवाधोधावमान धवलपयोधराम्---- ”<sup>18</sup>

*Bāṇa* arduously observed each mode of variations of nature with appropriate significance. Similarly he was able to justify the possibilities of comprising anything into any substance. In second *ucchvāsa* of *Harṣacarita* he tries to compare his childhood to summer.

‘तत्रस्थस्य चास्य कदाचित्कुसुमसमयमुपसंहरत्रजृम्भत  
ग्रीष्माभिधानसमुत्फल्लमल्लिकाधवलादृहासो महाकालः।---”<sup>19</sup>

Similarly he elaborates the delightful scenarios of the beginning of autumn season, the amazing features of climate like the thinning of clouds, the arrival of autumn season, with the distressed *cātaka* birds, *kadamba* trees making cluck-cluck sound and so on.

‘दृष्टे तस्मिन् राज्ञा प्रथमे शेषमपि प्राभृतं प्रकाशयांचक्रुः क्रमेण कार्माः।---”<sup>20</sup>

From these illustrations we can understand *Bāṇa*'s affection towards nature, his awareness about different aspects of natural phenomenon which he tried to depict with different kinds of objects in his own magnificently eloquent style, clubbed with his observation power and skill in imagination and description which differentiates his works from

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<sup>18</sup> *Ibid.*I. p 52.

<sup>19</sup> *Ibid.* II p. 118.

<sup>20</sup> *Ibid.* III p. 224.

the other Sanskrit literary works. There is no doubt that the whole multitude of living beings on earth which becomes the subject of *Bāṇa* pen turns into an amazing rainbow.

### Flora depicted in *Harsacarita*

Sl.	Name	Malayalam	English	Family name	Scientific Name
1	കുമുദ:	ആമ്പൽ	Water Lilly	Nymphaeaceae	Nymphaea lotus
2	യൂതിന:	മുല്ല	Jasmine	Oleaceae	Jasminum Sambac
3	കുടജ:	കുടകപ്പാല	Kudaya	Apocynaceae	Holarrhena pubescens
4	മന:ശില	കരിമ്പന	Palmyrapalm	Areacaceae	Borassus flabellisfer
5	ചമ്പക:	ചമ്പകം	Chempaka	Magnoliqceae	Michelia champaca
6	നീപ:	കടമ്പ്	Kadam	Rubiaceae	Neolamarckia cadamba
7	രക്തോത്പല:	ചെന്തൊമര	Red lotus	Nelumbonaceae	Nelumbo nucifera
8	മാലതി	പിച്ചകം	Spanish Jasmine	Oleaceae	Jasminum grandiflorum
9	കുശ:	ദർഭപ്പുല്ല്	Halfa grass	Poaceae	Desmostachya bipinnata
10	കർപ്പൂരമൃഗ:	കർപ്പൂര മരം	Camphor tree	Lauraceae	Cinnamomum camphora
11	തില:	എള്ള	Seasamum	Pedaliaceae	Sesamum Indicum
12	കേതകി	കൈത	Umbrella tree	Pandanaceae	Pandanus odoratissimus
13	ബകുല:	ഇലഞ്ഞി	Elengi	Sapotaceae	Mimusops elengi
14	സഹകാർ:	മാവ്	Mango tree	Anacardiaceae	Mangifera indica
15	കുവലയ:	നീലത്തൊമര	Blue lotus	Nymphaeaceae	Nymphaea nouchali
16	കവകോല:	കക്കോലം	Star anise	Schisandraceae	Illicium verum
17	ലവङ്ഗ:	ഗ്രാമ്പൂ	Clove	Myrtaceae	Syzygium aromaticum
18	പാരിജാത:	പാരിജാതം	Indian coral tree/sunshine tree	Fabaceae	Erythrina variegata
19	കുന്ദ:	കുറുകുത്തി മുല്ല	Downy Jasmine	Oleaceae	Jasminum multiflorum
20	ചന്ദന:	ചന്ദനം	Sandal tree	Santalaceae	Santalum album
21	സിന്ധുവാർ:	നെച്ചി	Chaste tree	Lamiaceae	Vitex negundo
22	തമാല:	പന	Palmyra tree	Areacaceae	Borassus flabelliferous
23	ദേവദാർ:	ദേവ താര/ദേവ ദാരൂ	Deodar	Pinaceae	Cedrus deodara
24	താമ്ബൂലീ:	വെറ്റില കൈടി	Betelvine	Piperaceae	Piper bettle
25	ജമ്പൂ	ഞാവൽ	Rose apple tree	Myrtaceae	Syzygium cumini
26	ജമ്പീർ:	ചെറുനാരകം	Lime tree	Rutaceae	Citrus limon
27	പീലു	പന	Palmyr palm	Arecaceae	Borassus flabellifer
28	കട്ഫല:	കട്ഫലം	Bayberry tree	Myricaceae	Myrica nagi



29	शेफालिका	കരിനൊച്ചി	Chaste tree	Lamiaceae	Pterospermum acerifolium
30	कर्णिकारः	മുചുകന്ദം	Karnikar tree	Malvaceae	Pterospermum acerifolium
31	नमेरुः	രൂദ്രാക്ഷം	Bead	Elaeocarpaceae	Elaeocarpus rphaericum
32	नलदः	നളുദ	Muskroot	Caprifoliaceae	Nardostachys Jatamansi
33	नारिकेलः	തെങ്ങ	Coconut	Arecaceae	Cocos nucifera
34	अशोकः	അശോകം	Asoka	Caesalpinioideae	Saraca asoca
35	हिडगुः	കായം	Assafoetida	Apiaceae	Ferula asafoetida
36	पूगः	കവുങ്ങ്	Arecanut tree	Arecaceae	Area catechu
37	एलः	ഏലം	Cardamom	Zingiberaceae	Elettaria cardamomum
38	प्रियङ्गु	ഞാഴൽ		Meliaceae	Aglaia elaeagnoidea
39	मुचुकुन्दः	മുചുകുന്ദം	Karnikara	Malvaceae	Pterospermum acerifolium
40	कपीतनः	കല്ലാൽ	Kapithana	Moraceae	Ficus arnottiana
41	हरिद्रा	മഞ്ഞൾ	Turmeric	Zingiberaceae	Curcuma longa
42	गुञ्जा	കുന്നിക്കൂരു	Indian liquoria	Fabaceae	Abrus Precatorius
43	जाती	ജാതി	nutmeg	Myristicaceae	Myristica fragrans
44	चरोलि	മുരൾ	Charoli	Anacardiaceae	Buchanania lanzan
45	सोमलता	സോമലത	Soma plant	Asclepiadaceae	Sarcostemma acidum
46	पीलु	ഉകമരം	Saltbush/tooth brush tree	Salvadoraceae	Salvadora persica
47	मातुलिङ्गः	ഗണപതി നാരകം	Citron	Rutaceae	Citrus medica
48	द्राक्षा	മുന്തിരി	Common grape vine	Vitaceae	Vitis vinifera
49	कुडकुमः	കുങ്കുമം	Salfron	Iridaceae	Crocus sativus
50	फेनिलः	ഉറുഞ്ചി	Soapnut tree	Sapindaceae	Sapindus lauri folia
51	राजमाषः	പയർ/വൻപയർ	Cowpea	Fabaceae	Vignia unguiculata
52	तिलः	എള്ള്	Sesame	Pedaliaceae	Sesamum indicum
53	पुण्डुःडुधुः	കരിമ്പ്	Sugar cane	Poaceae	Saccharum officinarum
54	अरण्यजीरकः	കാട്ടുജീരകം/ കുമിശ്ശി	Purple fleebane	Asteraceae	Vernonia anthelmintica
55	शालि	നെല്ല്/ നവര	Paddy/Rice	Poaceae	Oryza sativa
56	गोधुमः	നെല്ല് ഗോതമ്പ്	Common wheat/Bread wheat	Poaceae	Triticum aestivum

57	മുദ്ദാ:	ചെറുപയർ	Green gram/Golden gram	Fabaceae	Vigna radiata
58	शाकः	തേക്ക്	Teak	Verbenaceae	Tectona grandis
59	काश्मरि	കുമിഴ്	Coomb teak/Karmari tree	Verbenceae	Gmelina arborea
60	राजदनः	പഴ മുൻപാല	Obtuse leaved mimusops	Sapotaceae	Manikara hexandra
61	मदनः	മലങ്കാരം/കാരച്ചുള്ളി	Emetic nut tree	Rubiaceae	Catunaregum spinosa
62	राजमाषः	വൻപയർ	Cowpea	Fabaceae	Vigna unguiculata
63	कर्कटिः	കക്കരിക്ക	Snake cucumber	Cucurbitaceae	Cucumismelo
64	कुष्माण्डः	കുമ്പളം	Ash gourd	Cucurbitaceae	Benincasa hispida
65	इन्दीवरः	കരിമ്പു വളം	Oval seafed pond weed	Pontederiaceae	Monochoria vaginalis
66	शेफालिका	നെച്ചി	Five leared chaste tree	Lamiaceae	Vitex negundo
67	यूथिका	തൂശിമുല്ല	Needle flower jasmine	Oleaceae	Jasminum auriculatum
68	बन्धूकः	ഉച്ചമലരി	Noon plant	Sterculiaceae	Pentapetes phonicea
69	सप्तच्छदः	ഏഴിലം പാല	Indian devil tree	Apocynaceae	Alstonia scholaris
70	सुरसः	തൂളസി	Thulasi	Lamiaceae	Ocimum sanctum
71	नीलः	കരിവേങ്ങ	Fabaceae	Fabaceae	Indigofera tinctoria
72	पाटलः	പാതിരി	Fire flame bush	Lythraceae	Wood fordia fruticosa
73	लकुचः	ആഞ്ഞിലി	Wild jack	Moraceae	Artocarpus hirsutus
74	धवः	വെള്ളനവര	Axle wood	Conretaceae	Anogeissus latifolia
75	कृष्णागुरुः	കാരകിൽ	Aloe wood/Agar wood	Thymelaeaceae	Aquilaria agalloca
76	आभीरुः	ശതാവരി	Satavar	Asparagaceae	Asparagus racemosus
77	वटः	പേരാൽ/വടവൃക്ഷം	Indian banyan	Moraceae	Ficus benghalensis
78	मुलि	മുള്ളന്തി	Raddish	Brassicaceae	Raphanus sativus
79	असनः	വേങ്ങ	Indian kino tree	Fabaceae	Pterocarpus marsupium
80	विदारि	മുരുക്ക്	Indian kudzu	Fabaceae	Pueraria tuberosa
81	अर्कः	എരുക്ക്	Mudar	Apocynaceae	Calotropis gigantea
82	झुल्लपुष्पः	മുക്കുറ്റി	Mukkuti	Oxalidaceae	Biophytum sensitivum
83	भुर्जः	ഭൂർജവരം	Himalayan birch	Betulaceae	Betula utilis

84	കോവിലാർ:	ചുവന്ന മന്ദാരം	Red mandara	Caesalpiniaceae	Bauhinia variegats
85	ഉഴീർ:	രോമച്ചുരം	Vetiver	Poaceae	Vetiveria zizanioides
86	ശ്യാമാക:	ചാമ	Little millet	Poaceae	Panicum sumatrense
87	ദന്തിനി	നാഗദന്തി	Dandhi	Euphorbiaceae	Baliospermum montanum
88	മാഴ:	ഉഴുന്ന്	Black gram	Fabaceae	Vigna mungo
89	രസോൻ:	വെളുത്തുള്ളി	Garlic	Amaryllidaceae	Allium sativum
90	ട്രീഫറ്:	ത്രീപുട	Eurpeth	Convolvulaceae	Operculina turpethum
91	പദ്മക:	പതിമുഖം	Bird cherry	Rosaceae	Prunus cerasoides
92	ശ്രീപർണ്ണ:	വെളുളിലം	Walbuthsarara	Rubiaceae	Mussaenda frondosa
93	കപികച്ഛു:	നായ്ക്കൊരുണ	Common cowitch	Fabaceae	Mucuna pruvians
94	ട്രീഫറ്:	ത്രീപുട	turpeth	Convolvulaceae	Operculina turpethum
95	അലമ്പുഴ:	നീർത്തൊട്ടുവാടി	Sensitive Water plant	Mimosaceae	Neptunia oleracea
96	കരവീർ:	അരളി	Indian oleander	Apocynaceae	Nerium oleander
97	ധനവല്ലി	തലവേദനവല്ലി	Dhanavalli	Ranunculaceae	Naravelia zeylanica
98	ലാഭഗലിക്ക:	മേനോന്നി	Malabar glory	liliaceae	Gloriosa superba
99	സഹകാർ:	മാവ്	Mango tree	Anacardiaceae	Mangisfera indica
100	ഇട്കുടി	ഓട	Ingudhi	Icacinaceae	Sarcostigma kleinii
101	ലാഭവൃക്ഷ:	പുറം	Lactree	Sapindaceae	Schleichera oleosa
102	മല്ലാതക:	ചേർ/അലക്ക് വേർ	Marking nut tree	Anacardiaceae	Semecarpus anacardium
103	അതിമുക്ത:	കുറുകുത്തി മുല്ല	Dawny jasmine	Oleaceae	Jasminum multiflorum
104	ശിരീഷ:	നെൻമേനി വാക	Siris tree	Fabaceae	Albizia lebbeck
105	പലാശ:	പ്ലാശ്	Palash	Fabaceae	Butea monosperma
106	ഗുച്ഛകർജ്ജ:	കരിത്തൊട്ട	Nilepa bark tree	Simaroubaceae	Samadera indica
107	രാജീവ്	നീലത്താമര	Blue lotus	Nymphaeaceae	Nymphaea nouchali
108	കകുഭ:	കുടകപ്പാല	Kurchi	Apocynaceae	Holarrhena pubescens
109	അർജുൻ:	നീർമരുത്	Arjun tree	Combretaceae	Terminalia arjuna
110	അമലക:	നെല്ലി	Indian gooseberry	Phyllanthaceae	Phyllanthus emblica
111	അർജുൻ:	ഇഴുത്തപ്പന	Date palm	Arecaceae	Phoenix dactylifera
112	നീപ:	കടമ്പ്	Kadam	Rubiaceae	Neolamarckia cadamba
113	പിണ്ഡ:	ചുരയ്ക്ക	Bottle gourd	Cucurbitaceae	Lagenaria siceraria
114	പൂലിക:	നീരോലി	Pulika	Phyllanthaceae	Phyllanthus reticulatus

115	सरलः	ചരളം	Chirpine	Pinaceae	Pinus roxburghii
116	हीवेरं	ഇരുവേലി	Monordica Diosia	Lamiaceae	Plectranthus vettiveroides
117	पर्पटः	പർപ്പടകപ്പുല്ല്	A kind of grass	Rubiaceae	Hedyotis corymbosa
118	गिरिकदम्बः	മഞ്ഞകടമ്പ്	Haldu	Rubiaceae	Haldina cordifolia
119	चित्रकः/दहनः	കൊടുവേലി	Fire plant	lumbaginaceae	Plumbago indica
120	छाया पर्पटिका	നൊങ്ങണം പ്പുല്ല്	A kind of grass	Rubiaceae	Hedyotis herbaceae
121	मधुकः	ഇരിപ്പ	Mahua	Sapotaceae	Madhuca longifolia
122	कुलथः	മുതിര	Horse gram	Fabaceae	Macrotyloma uniflorum
123	कपित्थः	വിളാർ മരം	Elephant apple	Rutaceae	Limonia acidissima
124	निष्पावः	അമര	Bean	Fabaceae	Lablab purpureus
125	आफोता	കാട്ടുമുല്ല	Wild jasmine	Oleaceae	Jasminum angustifolium
126	अक्षोटः	അക്രോട്ട്	Common walnut	Juglandaceae	Juglans regia
127	जीवकः	ജീവക	Jeevak	Orchidaceae	Malaxis acuminata
128	वातहिन	വാതം കൊല്ലി	Willow-leaved justicia	Acanthaceae	Justicia gendarussa
129	कर्चुरः	കച്ചുരി	Cutcherry	Zingiberaceae	Kaempferia galanda
130	प्लङ्गः	ഇത്തി	Indian laurel	Moraceae	Ficus microcarpa
131	सक्तुः	ബാർലി	Barley	Poaceae	Hordeum vulgare
132	कोकिलाक्षः	വയൽച്ചുള്ളി	Long leaved barleria	Acanthaceae	Hygrophila auriculata
133	लामञ्चकः	രാമച്ചം	Vetiver	Poaceae	Vetivera zizanioides
134	सर्जः	കുന്തിരിക്കം	Indian copal tree	Diptero caspaeae	Vateria indica
135	नतः	തകര	Indian valerian	Caprifoliaceae	Valeriana jatamansi
136	गोक्षुरः	ഞെരി ഞ്ഞിൽ	Land caltrops	Zygo phyllaceae	Tribulus terrestris
137	लोधः	പാച്ചോറ്റി	Chunga	Symplocaceae	Symplocos cohinchinensis
138	गोलकन्दः	ഉരുളക്കിഴങ്ങ്	Potato	Bolanaceae	Solanum tuberosum
139	पारन्ती	തെച്ചി	Sacred ixora	Rubiaceae	Ixora coccinea
140	कृष्णाबीजः	താളിയരി	Pharbitis seek	Convolvulaceae	Ipomea nil
141	नीवारः	വരിനെല്ല്	Bengal wild rice	Poaceae	Hygrorysa aristata
142	वेतसः	ആറ്റുവഞ്ചി	Vetasa	Euphorbiaceae	Homonoia riparia
143	चिरवित्त्वः		Indianelem	Ulmaceae	Holoptelea integrifolia
144	सीताम्बु	സീതാമ്പു	Clustered hiptage	Malpighiaceae	Hiptage benghalensis

145	श्यामला	പാർവള്ളി	A kind of grass	Apocynaceae	Ichnocarpus frutescens
146	लक्ष्मणा	തിരുതാളി	A kind of grass	Convolvulaceae	Ipomea sepiaria
147	तुवरकः	മരോട്ടി	Chaulamugra	Flacourtiaceae	Hydnocarpus laurifolia
148	कासमारः	മോതിരക്കണ്ണി	Climbing flan	Linaceae	Hugonia mystax
149	धातकि	താതിരി	Fire flame bush	Lythraceae	Wood foridia fruticosa
150	कुष्ठकः	ശീമക്കൊട്ടം	Kuth, Costus	Asteraceae	Saussurea lappa
151	स्नुहि	ഇലക്കള്ളി	Common milk hedge	Euphorbiaceae	Euporbia ligularis
152	मकायः	ചോളം	Corn	Poaceae	Zea mays
153	बदरः	ഇലന്ത	Indian jujube	Rhamnaceae	Ziziphus mauritiana
154	बर्बुरः	കരിവേലം	Babul	Mimocoaceae	Acacia nilotica
155	कर्कन्धु	തൂടലി	Jacke/Jujube	Rhannaceae	Ziziphus oenoplia
156	शालुकः	കാച്ചിൽ	Grater yam	Dioscoreaceae	Dioscorea alata
157	लिङ्गिनि	നെയ്യുണ്ണി	□ivalingi	Cucurbitaceae	Diplocyclos palmatus
158	पारा	പാടവള്ളി	Pata root	Menispermaceae	Cyclea peltata
159	तिन्दुकः	പനച്ചി	Coromandel ebony	Ebenaceae	Diospyros melanoxylon
160	ऋषुषः	വെള്ളരി	Cucumber	Cucurbitaceae	Cucumis sativus
161	कर्कटि	കക്കരിക്ക	Snake cucumbe	Cucurbitaceae	Cucumis melo
162	किंशुकः	മുള	Bamboos	Poaceae	Bambusa bambos
163	कुष्ठः	കൊട്ടം	Kuth	Asteraceae	Saussurea costus
164	अगस्ति	അകത്തി	Swamp pea	Rabaceae	Sesbania grandiflora
165	तवक्षीरि	കുവ	Arrow root	Marantaceae	Maranta arundinaceae
166	नागकेसरः	നാഗപ്പുവ്	Iron wood tree	Clusiaceae	Mesuanagassarium
167	गिरिकर्णिका	ശംഖുപുഷ്പം	Clitoria	Fabaceae	Clitoria ternatea
168	मरुवक	കർപ്പൂര തൂളസി	Peppermint	Lamiaceae	Mentha longifolia
169	कुरवकं	ചെങ്കുറുഞ്ഞി	Kurunji	Acanthaceae	Nilgrianthus ciliata
170	जपा	ചെമ്പരുത്തി	Shoe flower plant	Malvaceae	Hibiscus rosa sinensis
171	हिन्ताला	ഇൗൽ	Hintals	Cycadaceae	Cycas circinalis
172	शिघ्रु	മുരിങ്ങ	Drumstick	Moringaceae	Hyperanthera moringa

173	वनहरिद्रा	കാട്ടുമഞ്ഞൾ	Wild turmeric	Zingiberaceae	Curcuma aromatica
174	सूरणः	ചേന	Elephant boot yam	Araceae	Amorphophallus paeoniifolicus
175	करञ्जः	ഉങ്ങ്	Indian beech	Fabaceae	Pongamia pinnata
176	वचा	വയമ്പ്	Sweet flag	Areca	Acorus Calamus
177	काशः	ഞാങ്ങണ	Thatch grass	poaceae	Saccharum spontaneum
178	एरण्डः	ആവണക്ക്	Castor	Euphorbiaceae	Ricinus communis

### Birds depicted in *Harṣacarita*

Sl.	Name	Malayalam	English	Family name	Scientific Name
1	तित्तिरिः	തിത്തിരിപ്പക്ഷി	Partridge	Phasianidae	Phasianus colchicus
2	हंसः	അരയന്നം	Swan	Anatidae	Anser indicus
3	मयूरः	മയിൽ	Peacock	Phasianidae	Pavo cristatus
4	चक्रवाकः	ചക്രവാകം	Brahmani duck	Anatidae	Tadorna ferruginea
5	शकुनि	ശകുനി	Sakuni	Cervidae	Corvus corax
6	कुक्कुटः	കോഴി	Cock	Phasianidae	Gallus Gallus
7	उष्ट्रः	ഒട്ടകം	Camel	Camelidae	Camelus dromedarius
8	कपिञ्जलः	വേഴാമ്പൽ	Hornbill	Bucerotidae	Ocyrceros birostris
9	तित्तिरिः	തിത്തിരിപ്പക്ഷി	Grey partridge	Phasianidae	Predix perdix
10	ग्राहकः	പരുന്ത്	Eagle	Acciotridae	Clanga hastata
11	चकोरः	ചകോരം	Grey partridge	Phasianidae	Perdixrufa
12	हरितालः	ചുളുപാവ്	Green pigeon	Columbidae	Caloenas maculata
13	कादम्ब	കാദംബ	Bar headed goose	Anatidae	Anser indicum
14	मैना	മൈന	Myna	Sturnidae	Acridothers tristis
15	शुकः	തത്ത	Parrot	Psittacidae	Pisttacula exsul
16	वायसः	കാക്ക	Gungle crow	Corvidae	Corvus culminatus
17	वायसः	കാക്ക	House crow	Corvidae	Corvus splendens
18	चातकः	ചാതകം	Horn bill	Bucerotidae	Ocyrceros birostris
19	चटकः	ഉഴുതക്കുരുകിൽ	Sparrow	Passeridae	
20	कोकिलः	കുയിൽ	Cuckoo	Cuculidae	Cuculus micropterus

CHAPTER VI  
**THE BIODIVERSITY PORTRAYED IN  
*HARṢACARITA***

Ancient Indians considered nature as an integral part of their life, hence they were very much interested in observing and studying each phenomena of nature in order to realize its impact on human life. As a result there developed a deep knowledge about nature which are reflected in their literary works also. Works of Prominent writers like *Bāsa*, *Kālidāsa*, *Bhavabhūti*, *Māgha* and *Bhāravi*, *Bāṇa* etc. clearly are the testimonials to this fact.

Like these prominent writers *Bāṇabhaṭṭa* also successfully illustrate various types of natural phenomenon without any kind of exaggeration in its originality. *Bāṇabhaṭṭa* who unfortunately had lost his parents at very at his early age. After completing his formal education as was the practice at that time, he was leading wandering life with his friends. The experiences acquired by him during this period helped him to achieve the knowledge about the various phases of human life and made him well awareness of worldly affairs. Above all, he was a great lover of nature, had clearly

observed even the minute details about various aspects of nature and described perfectly this phenomenon in his works with vividly.

Even though *Bāṇa* was a particular skill in the usage of embellished language, he profoundly depicted the whole phenomena of nature including their flora and fauna in a very picturesque manner.

*Bāṇa* never fails to elucidate delightful views of nature with its minute details. He presents before us a clear picture of dense forest with sufficient illustrations of attractive fragrance of flowers, tremendous trees, silent creepers, sweet music of intoxicated birds, groaning sound of flies, ruminating sound of different kind of deers and uproarious shouting of wild animals etc. He describes about huge amount of trees, shrubs, and medicinal plants

अथ क्रमेण गच्छत एव तस्य अनवकेशिनः कुङ्मलितकर्णिकाराः प्रचुरचम्पकाः  
स्फीतफलेग्रह्याः, फलभरित नमेरवः नीलदलनलनारिकेलनिकराः ----.<sup>1</sup>

Through this description *Bāṇa* gives a brief account of knowledge about different kinds of flora and fauna which existed at that time.

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<sup>1</sup> *Ibid.*, VII pp.832.



Similarly *Bāṇa* demonstrates his thorough knowledge about some wild grains and certain agricultural details along with the description of a forest village in *Harṣacarita*. Here *Bāṇa* explained some ancient types of tiger traps, drinking arbours, huge banyan trees surrounded by cowsheds made of dry branches of trees, harvest lands and fertile black soil and certain fields with abundant crops, beautiful flowers and the inhabitants of the village. ie.

‘अथ प्रविशन्दूरादेव दह्यमानषष्टिकबुसविसरविसारिविभावसूनां  
वन्यधान्यबीजधानीनां धूमेन धूसरिणमादधानैः  
शुष्कशाखासंचयरचितगोवाटवेष्टितविकटवटैः---”<sup>2</sup>

*Bāṇa* shows great enthusiasm to describe the natural portrayal of nature with more and elaborate explanations of its abundant resources. While giving the exposition of king *Śriharṣa* he gracefully discloses about the wealth of the *Janapadas* of *Śrikanṭha* with their plentiful crop production of rice and wheat and lots of cows, buffaloes and groups of camels etc. In his explanations *Bāṇa* gives an account of the precautionary measures taken by ancient Indians to protect their wealth, cattle and crops.

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<sup>2</sup> *Ibid.* VII, p. 809

‘अस्ति पुण्यकृतामधिवासो वासवावास इव वसुधामवतीर्णः  
सततमसकीर्णवर्णव्यवहारस्थितिः कृतयुगव्यवस्यः स्थलकमलबहलतया  
पोत्रोन्मूलयमानमृणालैः उदगीतमोदिनीसारगुणैरिव  
कृतमधुकरकोलासारहलैरुल्लिलरव्यमानक्षेत्रः---<sup>3</sup>

Moreover *Bāṇa* draws an attractive picture of life, the life of peace, unity, love serenity and affection at the hermitage of the sage *Divākaramiṭra* with the fearless gestures of innocent Deers, and obedient lions sitting beside *Divākaramiṭra* and certain brilliant monkeys and some birds helping in their performance of religious deeds.

‘अथ तेषां तरूणां मध्ये नानादेशीयेः स्थानस्थानेषु स्थाणूनाश्रितै  
शिलातलेषूपविष्टैर्लताभवनान्यध्यावसद्भिर्रण्यनीनिकुञ्जेषु----- " <sup>4</sup>

Similarly *Bāṇa* narrates his life along with his relatives, here also the author extensively nourishes his dexterity to illustrate the elaborate divine qualities pertaining to *vedic* heredity. He describes the sacred atmosphere with incessant invocations of *vedic* hymns and numerous student memorizing various kind of *vedic* hymns, and birds like parrot and myna repeating the hymns they memorized by hearing the same. He also refers to certain religious sacrifices utilized with different flowers, *nīvāra* rice, *śyāmāka* and *kuśa* grass.

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<sup>3</sup> *Ibid.* III, pp. 258 - 259

<sup>4</sup> *Ibid* VIII. p.738

‘अथ तत्रानवरताध्ययनध्वनिमुखराणि, भस्मपुण्ट्रकपाण्डुरललाटैः

कपिलशिखाजालजटिलैः कुशानुभिरिव क्रतुलोभागतैर्बटुभिरध्यास्यमानाति--- ‘<sup>5</sup>

From the statements of Bāṇa we could understand the fact that people at that time were very much aware of the peculiarities of the living beings including their characteristic trait and other special features. They clearly recorded the peculiarities of certain animals based on their locality family, class, colour, gestures. etc. For instance in the second *ucchvāsa* of *Harṣacarita* he names different kinds of horses namely *Vanāyu*, *Arāṭṭa*, *Kāamboja*, *Bhāradvaja*, *Sindh* and *Persia* which were brought from different places, along with the description of a stable (*Āśvalaya*). He gives an elaborate account of their colour and other specific features based on the five auspicious marks with respect to their chest, back, face, eyes and flanks etc.

‘अथ वनायुजैः, आदृजैः, काम्बोजैः, भारद्वाजैः, सिन्धुदेशजैः, पारसीकैश्च, शोणेश्च  
, श्यामाश्च, श्वेतैश्च, पिञ्जरैश्च, हरिद्भिश्च, तित्तिरिक्लामाषैश्च, पञ्चभद्रैश्च--‘<sup>6</sup>

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<sup>5</sup> *Ibid* II p.125.

<sup>6</sup> *Ibid* p.165.

Similarly in the description of *Harṣa*'s favourite elephant, Which is considered as the external heart of *Harṣa*, *Bāṇa* exhibits his erudition about elephantology pointing out certain characteristic features of this elephant along with the keen observation of various aspect such as its red spots on its skin, flapping ears, spirituous scent of the ichor, long and huge body with sportive oscillation on his three feet, long trunk, and thick sharp teeth.

‘ गत्वा च तं प्रदेशं दूरादेव गम्भीरगलगर्जितैर्वियतिचातककदम्बकैर्भुवि च  
 भवननीलकण्ठकुलैः कलकेकाकलकलमुखरमुखैः क्रियमाणकालकोलाहलम्  
 अविरलमधुबिन्दुपिङ्गलपद्मजालकीनां सारसीमिवात्यवगाढां दशां  
 चतुर्थीमुत्सृजन्तम्---

अनवरतमवर्तसशङ्खैरामन्द्रकर्णतालदुन्दुभिध्वनिभिः पञ्चमीप्रवेशमङ्गलारामिव  
 सूचयन्तम्---- ‘<sup>7</sup>

Ancient Indians considered nature as an integral part their part of life, hence they tried to respect, love nurture and co-operate with nature without causing much danger to its natural features and existence. They tried to protect each and every kind of substance of nature with much ardor. We could find from the descriptions of nature several huge trees, chirping sound of birds, sweet smell of beautiful flowers etc. The people made use of different kinds of natural substance in their everyday life and planted lots of plants and trees in the surroundings of their habitat and were interested in developing gardens nearby their residence. The

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<sup>7</sup> *Ibid* II p.170.

surroundings of royal palaces were beautified with different kinds of flowering plants and trees such as *Karṇikāra*, *Kuśa*, *Kuṭaja*, *Kadamba*. etc, and birds like parrot, cuckoo, peacock, pigeon and animals like elephants, cattles, horses, troops of camels, deers, etc. were nourished by them

‘ निर्वर्तितस्नानाशनव्यतिकरो विश्रान्तस्य मेखलकेन सह याममात्रावशेषे दिवसे  
भुवतवति भुभुजि प्रख्यातानां क्षितिभुजां बहूञ्शबिरसंनिवेशान्वीक्षमाणः  
पट्टबन्धार्थमुपस्थापितैश्च ---”<sup>8</sup>

Frequently the nature stimulate the slender feelings and emotions in human beings with its gentle touches along with its variegated pigments, soft and sweet music and pleasant fragrant and also with its amazing forests, trees, creepers, flowers, lakes, intoxicated birds, humming bees and attractive variegations of early dawns, moon rise, sunset and sunrise.

He mentions *lotus*, *lāngalikas*, *crance*, *Tamāla*, *Puṇḍarīka*, *Kalhāra*, *Uṭpala*, *Ketaki*, *Mālati*, *Bakuḷa*, *Kakkola* fruits, *cloves*, *Pārijāta*, *Kadamba*, *flowers* and *caphara* fishes, etc.

‘अथ मुहूर्तमात्रमिव स्थित्वा च तां तस्य रूपसंपदं पुनःपुनर्व्यस्मयितास्या  
हृदयम् ।-----विघटमानचक्रवाकयुगलविसृष्टैरस्पृष्टापि श्यामतामाससाद  
विरहनिःश्वासधूमैः ।पुष्पधूलिधूसरैरदष्टापि व्यचेष्टत मधुकरकुलैः’<sup>9</sup>

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<sup>8</sup> *Ibid* II p.125.

‘अपश्यच्चाम्बरतलस्थितैव हारमिव वरुणस्य, अमृतनिर्झरमिव चन्द्राचलस्य ,  
शशिमणिनिष्यन्तमिव -----अभिनन्दितवचना च तथेति तथा तस्य पश्चिमे तीरे  
समवातरत् । एकस्मिंश्च शुचौ शिलातलसनाथे तटलतामण्डपे गृहबुद्धिं  
बबन्ध ।’<sup>१०</sup>

‘एवमतिक्रामत्सु दिवसेषु गच्छति च काले याममात्रोद्गते च रवावुत्तरस्यां  
ककुभि प्रतिशब्दपूरितवनगह्वरं गम्भीरतरं तुरङ्गहेषितह्लादमश्रुणोत् ।---”<sup>11</sup>

*Bāṇa* always tried to reveal minute details of his depictions, with his keen observation skill and great enthusiasm and narrative skill. In fact he was very fond of ornamentation, but his illustrations never lack reality. Moreover he was a great lover of nature; he realized the fact that the unparalleled beauty and fragrance of nature could reconcile with the intensity of each sentiments, feelings and ideas of humanity. Therefore he carefully delineated different shades of natural events with his own magnificently eloquent style.

*Bāṇa* clearly pointed out the fact that nature helps to reflect the feelings of human beings.

‘ एवमतिक्रामत्सु दिवसेषु गच्छति च काले याममात्रोद्गते च रवावुत्तरस्यां  
ककुभि प्रतिशब्दपूरितवनगह्वरं गम्भीरतरं तुरङ्गहेषितह्लादमश्रुणोत् ।---”<sup>12</sup>

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<sup>9</sup> *Ibid* II p.125.

<sup>10</sup> *Ibid*.II p.56.

<sup>11</sup> *Ibid*. II p.58.

<sup>12</sup> *Ibid*. IV p.426 .

Similarly *Bāṇa* beautifully delineates the sunset and a blanched moon rise with suitable embellishment along with the description of *Brahmaloka*.

‘अथ सकलकमललक्ष्मीवधूमुख इव संचार्य समवसिते वासरे ,  
विवाहदिवसश्रियः पादपल्लव इव रज्यमाने सवितरि ,  
वधूवरानुरागलघूकृतप्रेमलज्जितेष्विव विघटमानेषु चक्रवाकमिथुनेषु,  
सौभाग्यध्वज इव रक्तांशुकसुकुमारवपुषि नभसि स्फुरति संध्यारागे।’<sup>13</sup>

Similarly *Bāṇa* reveals a sad sunset after the death of *Prabhākaravardhana* (the king of *Sthaṇīśvara*) with some descriptions suitable for the occasion.

‘अत्रान्तरे सरस्वत्यवतरणवार्तामिव कथयितुं मध्यमं लोकवततारांशुमाली।  
क्रमेण च मन्दायमाने मुकुलितबिसिनी विसरव्यसनविषण्णसरसिवासरे---”<sup>14</sup>

A painful morning also is narrated by him in the same manner.

‘ततः शुचेव मुक्तकण्ठमारटत्सु कृकवाककुलेषु  
गृहगिरिततरुशिखरेभ्यपातयत्स्वात्मानं मन्दिरमयूरेषु---”<sup>15</sup>

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<sup>13</sup> Ibid. I p.42

<sup>14</sup> Ibid. V p.519

<sup>15</sup> Ibid. II p.56

Besides that *Bāṇa* adds certain allusions to the death of *Prabhākaravardhana*.

‘देवोऽपि हर्षः पुञ्जीभूतेन सकलेनेव जीवलोकेन लोकेन राजकुलसंबद्धेनाशेषेण  
शोकमूकेन परिवृतोऽन्तर्वर्तिनि शोकानलतप्तने---”<sup>16</sup>

He profoundly discloses every attractive glories of nature with brief account of explanations about certain flora and fauna in a picturesque manner while giving an account of the attractive sights of a beautiful place near the banks of *Mandākinī* river with sweet smell of various flowers, huge trees having stocks of bees on them and with heaps of pollen.

‘अपश्यच्चाम्बरतलस्थितैव हारमिव वरुणस्य, अमृतनिर्झरमिव चन्द्राचलस्य,  
शशिमणिनिष्यन्तमिव विन्ध्यस्य, कर्पूरद्रुमद्रवप्रवाहमिव दण्डकारण्यस्य---”<sup>17</sup>

Ancient Indians were very much attracted by the unrivalled beauty of nature, they are excessively influenced by the fluent pursuit of rivers and its murmuring sound. This kind of attitude is reflected in the description of *Bāṇa*'s works, this fact is undoubtedly elucidated by the illustration of the steady pursuit of river Ganges

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<sup>16</sup> Ibid. V p. 58

<sup>17</sup> Ibid. V. p. 55.



‘ ततः क्रमेण ध्रुवप्रवृत्तां धर्मधेनुमिवाधोधावमान धवलपयोधराम्---- ”<sup>18</sup>

*Bāṇa* arduously observed each mode of variations of nature with appropriate significance. Similarly he was able to justify the possibilities of comprising anything into any substance. In second *ucchvāsa* of *Harṣacarita* he tries to compare his childhood to summer.

‘तत्रस्थस्य चास्य कदाचित्कुसुमसमयमुपसंहरत्रजृम्भत  
ग्रीष्माभिधानसमुत्फल्लमल्लिकाधवलादृहासो महाकालः।---”<sup>19</sup>

Similarly he elaborates the delightful scenarios of the beginning of autumn season, the amazing features of climate like the thinning of clouds, the arrival of autumn season, with the distressed *cātaka* birds, *kadamba* trees making cluck-cluck sound and so on.

‘दृष्टे तस्मिन् राज्ञा प्रथमे शेषमपि प्राभृतं प्रकाशयांचक्रुः क्रमेण कार्माः।---”<sup>20</sup>

From these illustrations we can understand *Bāṇa*'s affection towards nature, his awareness about different aspects of natural phenomenon which he tried to depict with different kinds of objects in his own magnificently eloquent style, clubbed with his observation power and skill in imagination and description which differentiates his works from

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<sup>18</sup> *Ibid.*I. p 52.

<sup>19</sup> *Ibid.* II p. 118.

<sup>20</sup> *Ibid.* III p. 224.

the other Sanskrit literary works. There is no doubt that the whole multitude of living beings on earth which becomes the subject of *Bāṇa* pen turns into an amazing rainbow.

### Flora depicted in *Harsacarita*

Sl.	Name	Malayalam	English	Family name	Scientific Name
1	കുമുദ:	ആമ്പൽ	Water Lilly	Nymphaeaceae	Nymphaea lotus
2	യൂതിന:	മുല്ല	Jasmine	Oleaceae	Jasminum Sambac
3	കുടജ:	കുടകപ്പാല	Kudaya	Apocynaceae	Holarrhena pubescens
4	മന:ശില	കരിമ്പന	Palmyrapalm	Areacaceae	Borassus flabellisfer
5	ചമ്പക:	ചമ്പകം	Chempaka	Magnoliqceae	Michelia champaca
6	നീപ:	കടമ്പ്	Kadam	Rubiaceae	Neolamarckia cadamba
7	രക്തോത്പല:	ചെന്തൊമര	Red lotus	Nelumbonaceae	Nelumbo nucifera
8	മാലതി	പിച്ചകം	Spanish Jasmine	Oleaceae	Jasminum grandiflorum
9	കുശ:	ദർഭപ്പുല്ല്	Halfa grass	Poaceae	Desmostachya bipinnata
10	കർപ്പൂരമൃഗ:	കർപ്പൂര മരം	Camphor tree	Lauraceae	Cinnamomum camphora
11	തില:	എള്ള	Seasamum	Pedaliaceae	Sesamum Indicum
12	കേതകി	കൈത	Umbrella tree	Pandanaceae	Pandanus odoratissimus
13	ബകുല:	ഇലഞ്ഞി	Elengi	Sapotaceae	Mimusops elengi
14	സഹകാർ:	മാവ്	Mango tree	Anacardiaceae	Mangifera indica
15	കുവലയ:	നീലത്തൊമര	Blue lotus	Nymphaeaceae	Nymphaea nouchali
16	കവകോല:	കക്കോലം	Star anise	Schisandraceae	Illicium verum
17	ലവङ്ഗ:	ഗ്രാമ്പൂ	Clove	Myrtaceae	Syzygium aromaticum
18	പാരിജാത:	പാരിജാതം	Indian coral tree/sunshine tree	Fabaceae	Erythrina variegata
19	കുന്ദ:	കുറുകുത്തി മുല്ല	Downy Jasmine	Oleaceae	Jasminum multiflorum
20	ചന്ദന:	ചന്ദനം	Sandal tree	Santalaceae	Santalum album
21	സിന്ധുവാർ:	നെച്ചി	Chaste tree	Lamiaceae	Vitex negundo
22	തമാല:	പന	Palmyra tree	Areacaceae	Borassus flabelliferous
23	ദേവദാർ:	ദേവ താര/ദേവ ദാരൂ	Deodar	Pinaceae	Cedrus deodara
24	താമ്ബൂലീ:	വെറ്റില കൈടി	Betelvine	Piperaceae	Piper bettle
25	ജമ്പൂ	ഞാവൽ	Rose apple tree	Myrtaceae	Syzygium cumini
26	ജമ്പീർ:	ചെറുനാരകം	Lime tree	Rutaceae	Citrus limon
27	പീലു	പന	Palmyr palm	Arecaceae	Borassus flabellifer
28	കട്ഫല:	കട്ഫലം	Bayberry tree	Myricaceae	Myrica nagi

29	शेफालिका	കരിനൊച്ചി	Chaste tree	Lamiaceae	Pterospermum acerifolium
30	कर्णिकारः	മുചുകന്ദം	Karnikar tree	Malvaceae	Pterospermum acerifolium
31	नमेरुः	രൂദ്രാക്ഷം	Bead	Elaeocarpaceae	Elaeocarpus rphaericum
32	नलदः	നളുദ	Muskroot	Caprifoliaceae	Nardostachys Jatamansi
33	नारिकेलः	തെങ്ങ	Coconut	Arecaceae	Cocos nucifera
34	अशोकः	അശോകം	Asoka	Caesalpinioideae	Saraca asoca
35	हिडगुः	കായം	Assafoetida	Apiaceae	Ferula asafoetida
36	पूगः	കവുങ്ങ്	Arecanut tree	Arecaceae	Area catechu
37	एलः	ഏലം	Cardamom	Zingiberaceae	Elettaria cardamomum
38	प्रियङ्गु	ഞാഴൽ		Meliaceae	Aglaia elaeagnoidea
39	मुचुकुन्दः	മുചുകുന്ദം	Karnikara	Malvaceae	Pterospermum acerifolium
40	कपीतनः	കല്ലാൽ	Kapithana	Moraceae	Ficus arnottiana
41	हरिद्रा	മഞ്ഞൾ	Turmeric	Zingiberaceae	Curcuma longa
42	गुञ्जा	കുന്നിക്കുരു	Indian liquoria	Fabaceae	Abrus Precatorius
43	जाती	ജാതി	nutmeg	Myristicaceae	Myristica fragrans
44	चरोलि	മുരൾ	Charoli	Anacardiaceae	Buchanania lanzan
45	सोमलता	സോമലത	Soma plant	Asclepiadaceae	Sarcostemma acidum
46	पीलु	ഉകമരം	Saltbush/tooth brush tree	Salvadoraceae	Salvadora persica
47	मातुलिङ्गः	ഗണപതി നാരകം	Citron	Rutaceae	Citrus medica
48	द्राक्षा	മുന്തിരി	Common grape vine	Vitaceae	Vitis vinifera
49	कुडकुमः	കുങ്കുമം	Salfron	Iridaceae	Crocus sativus
50	फेनिलः	ഉറുഞ്ചി	Soapnut tree	Sapindaceae	Sapindus lauri folia
51	राजमाषः	പയർ/വൻപയർ	Cowpea	Fabaceae	Vignia unguiculata
52	तिलः	എള്ള്	Sesame	Pedaliaceae	Sesamum indicum
53	पुण्डुःडुधुः	കരിമ്പ്	Sugar cane	Poaceae	Saccharum officinarum
54	अरण्यजीरकः	കാട്ടുജീരകം/ കുമിശ്ശി	Purple fleebane	Asteraceae	Vernonia anthelmintica
55	शालि	നെല്ല്/ നവര	Paddy/Rice	Poaceae	Oryza sativa
56	गोधुमः	നെല്ല് ഗോതമ്പ്	Common wheat/Bread wheat	Poaceae	Triticum aestivum

57	മുദ്ദാ:	ചെറുപയർ	Green gram/Golden gram	Fabaceae	Vigna radiata
58	शाकः	തേക്ക്	Teak	Verbenaceae	Tectona grandis
59	काश्मरि	കുമിഴ്	Coomb teak/Karmari tree	Verbenceae	Gmelina arborea
60	राजदनः	പഴ മുൻപാല	Obtuse leaved mimusops	Sapotaceae	Manikara hexandra
61	मदनः	മലങ്കാരം/കാരച്ചുള്ളി	Emetic nut tree	Rubiaceae	Catunaregum spinosa
62	राजमाषः	വൻപയർ	Cowpea	Fabaceae	Vigna unguiculata
63	कर्कटिः	കക്കരിക്ക	Snake cucumber	Cucurbitaceae	Cucumismelo
64	कुष्माण्डः	കുമ്പളം	Ash gourd	Cucurbitaceae	Benincasa hispida
65	इन्दीवरः	കരിമ്പു വളം	Oval seafed pond weed	Pontederiaceae	Monochoria vaginalis
66	शेफालिका	നെച്ചി	Five leared chaste tree	Lamiaceae	Vitex negundo
67	यूथिका	തൂശിമുല്ല	Needle flower jasmine	Oleaceae	Jasminum auriculatum
68	बन्धूकः	ഉച്ചമലരി	Noon plant	Sterculiaceae	Pentapetes phonicea
69	सप्तच्छदः	ഏഴിലം പാല	Indian devil tree	Apocynaceae	Alstonia scholaris
70	सुरसः	തൂളസി	Thulasi	Lamiaceae	Ocimum sanctum
71	नीलः	കരിവേങ്ങ	Fabaceae	Fabaceae	Indigofera tinctoria
72	पाटलः	പാതിരി	Fire flame bush	Lythraceae	Wood fordia fruticosa
73	लकुचः	ആഞ്ഞിലി	Wild jack	Moraceae	Artocarpus hirsutus
74	धवः	വെള്ളനവര	Axle wood	Conretaceae	Anogeissus latifolia
75	कृष्णागुरुः	കാരകിൽ	Aloe wood/Agar wood	Thymelaeaceae	Aquilaria agalloca
76	आभीरुः	ശതാവരി	Satavar	Asparagaceae	Asparagus racemosus
77	वटः	പേരാൽ/വടവൃക്ഷം	Indian banyan	Moraceae	Ficus benghalensis
78	मुलि	മുള്ളന്തി	Raddish	Brassicaceae	Raphanus sativus
79	असनः	വേങ്ങ	Indian kino tree	Fabaceae	Pterocarpus marsupium
80	विदारि	മുരുക്ക്	Indian kudzu	Fabaceae	Pueraria tuberosa
81	अर्कः	എരുക്ക്	Mudar	Apocynaceae	Calotropis gigantea
82	झुल्लपुष्पः	മുക്കുറ്റി	Mukkuti	Oxalidaceae	Biophytum sensitivum
83	भुर्जः	ഭൂർജവരം	Himalayan birch	Betulaceae	Betula utilis

84	കോവിലാർ:	ചുവന്ന മന്ദാരം	Red mandara	Caesalpiniaceae	Bauhinia variegats
85	ഉഴീർ:	രമച്ചം	Vetiver	Poaceae	Vetiveria zizanioides
86	ശ്യാമാക:	ചാമ	Little millet	Poaceae	Panicum sumatrense
87	ദന്തിനി	നാഗദന്തി	Dandhi	Euphorbiaceae	Baliospermum montanum
88	മാഴ:	ഉഴുന്ന്	Black gram	Fabaceae	Vigna mungo
89	രസോൻ:	വെളുത്തുള്ളി	Garlic	Amaryllidaceae	Allium sativum
90	ട്രീഫറ്:	ത്രീപുട	Eurpeth	Convolvulaceae	Operculina turpethum
91	പദ്മക:	പതിമുഖം	Bird cherry	Rosaceae	Prunus cerasoides
92	ശ്രീപർണ്ണ:	വെള്ളിലം	Walbuthsarara	Rubiaceae	Mussaenda frondosa
93	കപികച്ഛു:	നായ്ക്കൊരുണ	Common cowitch	Fabaceae	Mucuna pruvians
94	ട്രീഫറ്:	ത്രീപുട	turpeth	Convolvulaceae	Operculina turpethum
95	അലമ്പുഴ:	നീർത്തൊട്ടുവാടി	Sensitive Water plant	Mimosaceae	Neptunia oleracea
96	കരവീർ:	അരളി	Indian oleander	Apocynaceae	Nerium oleander
97	ധനവല്ലി	തലവേദനവല്ലി	Dhanavalli	Ranunculaceae	Naravelia zeylanica
98	ലാഭഗലിക്ക:	മേനോന്നി	Malabar glory	liliaceae	Gloriosa superba
99	സഹകാർ:	മാവ്	Mango tree	Anacardiaceae	Mangisfera indica
100	ഇട്തുമുടി	ഓട	Ingudhi	Icacinaceae	Sarcostigma kleinii
101	ലാഭവൃക്ഷ:	പുവം	Lactree	Sapindaceae	Schleichera oleosa
102	മല്ലാതക:	ചേർ/അലക്ക് വേർ	Marking nut tree	Anacardiaceae	Semecarpus anacardium
103	അതിമുക്ത:	കുറുകുത്തി മുല്ല	Dawny jasmine	Oleaceae	Jasminum multiflorum
104	ശിരീഷ:	നെൻമേനി വാക	Siris tree	Fabaceae	Albizia lebbeck
105	പലാശ:	പ്ലാശ്	Palash	Fabaceae	Butea monosperma
106	ഗുച്ഛകർജ്ജ:	കരിത്തൊട്ട	Nilepa bark tree	Simaroubaceae	Samadera indica
107	രാജീവ്	നീലത്താമര	Blue lotus	Nymphaeaceae	Nymphaea nouchali
108	കകുഭ:	കുടകപ്പാല	Kurchi	Apocynaceae	Holarrhena pubescens
109	അർജുൻ:	നീർമരുത്	Arjun tree	Combretaceae	Terminalia arjuna
110	അമലക:	നെല്ലി	Indian gooseberry	Phyllanthaceae	Phyllanthus emblica
111	അർജുൻ:	ഇഴുത്തപ്പന	Date palm	Arecaceae	Phoenix dactylifera
112	നീപ:	കടമ്പ്	Kadam	Rubiaceae	Neolamarckia cadamba
113	പിണ്ഡ:	ചുരയ്ക്ക	Bottle gourd	Cucurbitaceae	Lagenaria siceraria
114	പൂലിക്ക:	നീരോലി	Pulika	Phyllanthaceae	Phyllanthus reticulatus

115	सरलः	ചരളം	Chirpine	Pinaceae	Pinus roxburghii
116	हीवेरं	ഇരുവേലി	Monordica Diosia	Lamiaceae	Plectranthus vettiveroides
117	पर्पटः	പർപ്പടകപ്പുല്ല്	A kind of grass	Rubiaceae	Hedyotis corymbosa
118	गिरिकदम्बः	മഞ്ഞകടമ്പ്	Haldu	Rubiaceae	Haldina cordifolia
119	चित्रकः/दहनः	കൊടുവേലി	Fire plant	lumbaginaceae	Plumbago indica
120	छाया पर्पटिका	നൊങ്ങണം പ്പുല്ല്	A kind of grass	Rubiaceae	Hedyotis herbaceae
121	मधुकः	ഇരിപ്പ	Mahua	Sapotaceae	Madhuca longifolia
122	कुलथः	മുതിര	Horse gram	Fabaceae	Macrotyloma uniflorum
123	कपित्थः	വിളാർ മരം	Elephant apple	Rutaceae	Limonia acidissima
124	निष्पावः	അമര	Bean	Fabaceae	Lablab purpureus
125	आफोता	കാട്ടുമുല്ല	Wild jasmine	Oleaceae	Jasminum angustifolium
126	अक्षोटः	അക്രോട്ട്	Common walnut	Juglandaceae	Juglans regia
127	जीवकः	ജീവക	Jeevak	Orchidaceae	Malaxis acuminata
128	वातहिन	വാതം കൊല്ലി	Willow-leaved justicia	Acanthaceae	Justicia gendarussa
129	कर्चुरः	കച്ചുരി	Cutcherry	Zingiberaceae	Kaempferia galanda
130	प्लक्षः	ഇത്തി	Indian laurel	Moraceae	Ficus microcarpa
131	सक्तुः	ബാർലി	Barley	Poaceae	Hordeum vulgare
132	कोकिलाक्षः	വയൽച്ചുള്ളി	Long leaved barleria	Acanthaceae	Hygrophila auriculata
133	लामञ्चकः	രാമച്ചം	Vetiver	Poaceae	Vetivera zizanioides
134	सर्जः	കുന്തിരിക്കം	Indian copal tree	Diptero caspaeae	Vateria indica
135	नतः	തകര	Indian valerian	Caprifoliaceae	Valeriana jatamansi
136	गोक्षुरः	ഞെരി ഞ്ഞിൽ	Land caltrops	Zygo phyllaceae	Tribulus terrestris
137	लोधः	പാച്ചോറ്റി	Chunga	Symplocaceae	Symplocos cohinchinensis
138	गोलकन्दः	ഉരുളക്കിഴങ്ങ്	Potato	Bolanaceae	Solanum tuberosum
139	पारन्ती	തെച്ചി	Sacred ixora	Rubiaceae	Ixora coccinea
140	कृष्णाबीजः	താളിയരി	Pharbitis seek	Convolvulaceae	Ipomea nil
141	नीवारः	വരിനെല്ല്	Bengal wild rice	Poaceae	Hygrorysa aristata
142	वेतसः	ആറ്റുവഞ്ചി	Vetasa	Euphorbiaceae	Homonoia riparia
143	चिरविल्वः		Indianelem	Ulmaceae	Holoptelea integrifolia
144	सीताम्बु	സീതാമ്പു	Clustered hiptage	Malpighiaceae	Hiptage benghalensis

145	श्यामला	പാർവള്ളി	A kind of grass	Apocynaceae	Ichnocarpus frutescens
146	लक्ष्मणा	തിരുതാളി	A kind of grass	Convolvulaceae	Ipomea sepiaria
147	तुवरकः	മരോട്ടി	Chaulamugra	Flacourtiaceae	Hydnocarpus laurifolia
148	कासमारः	മോതിരക്കണ്ണി	Climbing flan	Linaceae	Hugonia mystax
149	धातकि	താതിരി	Fire flame bush	Lythraceae	Wood foridia fruticosa
150	कुष्ठकः	ശീമക്കൊട്ടം	Kuth, Costus	Asteraceae	Saussurea lappa
151	स्नुहि	ഇലക്കള്ളി	Common milk hedge	Euphorbiaceae	Euporbia ligularis
152	मकायः	ചോളം	Corn	Poaceae	Zea mays
153	बदरः	ഇലന്ത	Indian jujube	Rhamnacee	Ziziphus mauritiana
154	बर्बुरः	കരിവേലം	Babul	Mimoceae	Acacia nilotica
155	कर्कन्धु	തൂടലി	Jacke/Jujube	Rhannaceae	Ziziphus oenoplia
156	शालुकः	കാച്ചിൽ	Grater yam	Dioscoreaceae	Dioscorea alata
157	लिङ्गिनि	നെയ്യുണ്ണി	□ivalingi	Cucurbitaceae	Diplocyclos palmatus
158	पारा	പാടവള്ളി	Pata root	Menispermaceae	Cyclea peltata
159	तिन्दुकः	പനച്ചി	Coromandel ebony	Ebenaceae	Diospyros melanoxylon
160	ऋषुषः	വെള്ളരി	Cucumber	Cucurbitaceae	Cucumis sativus
161	कर्कटि	കക്കരിക്ക	Snake cucumbe	Cucurbitaceae	Cucumis melo
162	किंशुकः	മുള	Bamboos	Poaceae	Bambusa bambos
163	कुष्ठः	കൊട്ടം	Kuth	Asteraceae	Saussurea costus
164	अगस्ति	അകത്തി	Swamp pea	Rabaceae	Sesbania grandiflora
165	तवक्षीरि	കുവ	Arrow root	Marantaceae	Maranta arundinaceae
166	नागकेसरः	നാഗപ്പൂവ്	Iron wood tree	Clusiaceae	Mesuanagassarium
167	गिरिकर्णिका	ശംഖുപുഷ്പം	Clitoria	Fabaceae	Clitoria ternatea
168	मरुवक	കർപ്പൂര തൂളസി	Peppermint	Lamiaceae	Mentha longifolia
169	कुरवकं	ചെങ്കുറുഞ്ഞി	Kurunji	Acanthaceae	Nilgrianthus ciliata
170	जपा	ചെമ്പരുത്തി	Shoe flower plant	Malvaceae	Hibiscus rosa sinensis
171	हिन्ताला	ഇൗൽ	Hintals	Cycadaceae	Cycas circinalis
172	शिघ्रु	മുരിങ്ങ	Drumstick	Moringaceae	Hyperanthera moringa



173	वनहरिद्रा	കാട്ടുമഞ്ഞൾ	Wild turmeric	Zingiberaceae	Curcuma aromatica
174	सूरणः	ചേന	Elephant boot yam	Araceae	Amorphophallus paeoniifolicus
175	करञ्जः	ഉങ്ങ്	Indian beech	Fabaceae	Pongamia pinnata
176	वचा	വയമ്പ്	Sweet flag	Areca	Acorus Calamus
177	काशः	ഞാങ്ങണ	Thatch grass	poaceae	Saccharum spontaneum
178	एरण्डः	ആവണക്ക്	Castor	Euphorbiaceae	Ricinus communis

### Birds depicted in *Harṣacarita*

Sl.	Name	Malayalam	English	Family name	Scientific Name
1	तित्तिरिः	തിത്തിരിപ്പക്ഷി	Partridge	Phasianidae	Phasianus colchicus
2	हंसः	അരയന്നം	Swan	Anatidae	Anser indicus
3	मयूरः	മയിൽ	Peacock	Phasianidae	Pavo cristatus
4	चक्रवाकः	ചക്രവാകം	Brahmani duck	Anatidae	Tadorna ferruginea
5	शकुनि	ശകുനി	Sakuni	Cervidae	Corvus corax
6	कुक्कुटः	കോഴി	Cock	Phasianidae	Gallus Gallus
7	उष्ट्रः	ഒട്ടകം	Camel	Camelidae	Camelus dromedarius
8	कपिञ्जलः	വേഴാമ്പൽ	Hornbill	Bucerotidae	Ocyrceros birostris
9	तित्तिरिः	തിത്തിരിപ്പക്ഷി	Grey partridge	Phasianidae	Predix perdix
10	ग्राहकः	പരുന്ത്	Eagle	Acciotridae	Clanga hastata
11	चकोरः	ചകോരം	Grey partridge	Phasianidae	Perdixrufa
12	हरितालः	ചുളുപാവ്	Green pigeon	Columbidae	Caloenas maculata
13	कादम्ब	കാദംബ	Bar headed goose	Anatidae	Anser indicum
14	मैना	മൈന	Myna	Sturnidae	Acridotheres tristis
15	शुकः	തത്ത	Parrot	Psittacidae	Pisttacula exsul
16	वायसः	കാക്ക	Gungle crow	Corvidae	Corvus culminatus
17	वायसः	കാക്ക	House crow	Corvidae	Corvus splendens
18	चातकः	ചാതകം	Horn bill	Bucerotidae	Ocyrceros birostris
19	चटकः	ഉഴുതക്കുരുകിൽ	Sparrow	Passeridae	
20	कोकिलः	കുയിൽ	Cuckoo	Cuculidae	Cuculus micropterus

CHAPTER VII  
THE BIODIVERSITY PORTRAYED IN  
*KĀDAMBARĪ*

*Kādambarī* is an extra ordinary Sanskrit fiction, which was written by *Bāṇa*'s excellent imaginative power and keen observation skill. It is a divine love story which is extended to a series of birth and rebirth. *Bāṇa* makes use of all kind of beautiful devices to increase the charm of his imaginative story and was never tired of unveiling the real essence of each event in his story. He was well aware of the strong appeal of nature which was lavishly employed in this work to make an attractive visible treat for all kind of readers. Therefore he made use of the marvellous beauty of nature with the description of abundant species of flora and fauna. Moreover, he carefully recorded delightful natural scenarios like the continuous incessant flow of rivers, cooling lakes, divine hermitages, immovable mountains, different shades of day and nights like the early dawn, sunrise, evening, twilight attractive moon rise and night, climatic changes and different seasons etc.

Even though his style of writing is very complicated *Bāṇa* unveils a true picture of each event in an exceedingly attractive manner. The

description of *Vindhya* forest at the very outset of the work *Kādambarī* is a fine example of the erudition of the author in explaining the beauty of the forest without leaving even the minute details therein.

"अस्ति पुर्वापर-जलनिधि- वेलावनलग्ना मध्यदेशालङ्कारभूता मेखलेव भुवः  
वनकरिकुल-मदजल .. अपरिमित - बहलपत्रसञ्चयाऽपि सप्रपर्ण भूषिता,  
क्रूरसत्वऽपि मुनिजनसेविता, पुष्पवत्यपि पवित्रा विन्ध्याटवी नाम ।"<sup>1</sup>

Here the author introduces different kinds of plants such as *Marica*, *Tamāla*, *Dādima*, *Kakkola*, *Lavaṅga*, *Nārikela*, *Ketaki*, *Karira*, *Bhakula*, *Tāmbuli*, *Puga*, *Elā*, *Raktacandana*, *Candana*, *Agaru*, *Tāla*, *Darbha* etc.

Besides that he mentioned some animals, birds and insects which were found in the *Vindhya* forest such as *kari*, *Kesari*, *hariṇa*, *varāḥa*, *mṛga*, *vyāgra*, *kurāra*, *śuka*, *nīlakaṇṭha*, *kokila* etc. Similarly, he beautifully brings out the sweet memories of Vedic and *purāṇic* age along with the descriptions of divine *agastyāśrama* with plenty of Plantain groves and different kinds of other huge trees and plants, animals and birds which live there in peace and harmony.

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<sup>1</sup> *Banabhatta, Kadambari, Vindhyatavi Varnana*, Sharma Seshadrarja Acarya (ed),  
Chaukamba Surabharathi Prakasan, Varanasi;19, p. 55.

" तस्याञ्च दण्डकारप्यान्तः पाति सकल भुवनविख्यातम् उत्पत्तिक्षेत्रमिव भगवतो धर्मस्य .. दिशि शुक हरितैश्च कदलीवनैः श्यामलीकृत - परिसरं सरिता च कलशयो निपरिपीत सागर मार्गनुगतयेव बद्धवेणिकया गोदावर्या परिगतमाश्रपदमासीत् ।"<sup>2</sup>

He was very much attracted by the calm and quite an atmosphere of the dense forest and also fond of by its sweet and soft music. While describing the charming beauty of *Candraprabha* valley near the lake *acchoda*, *Baṇā* briefly refers to some huge trees, flowers, and creepers like *Sarala*, *Sāla*, *Sallaki*, *Arjuna*, *Ulapa*, *Manahśilā*, *gugguḷū*, *ṭangana*, *haritāla*, *vetralatā*. etc.

उपजातजलाशयशङ्कश्च तं प्रतिपमनुसरन् उदग्रदृश्यैरुपरिच्छत्र मण्डलाकारैः सरल-साल-सल्लकी-प्रायैरविरलैरपि निःशाखतया विरलैरिवोपलक्ष्यमाणैः पदपैरुपेतेन .. तच्च सम्मूखागतेन कुसुमरजः कषायमोदिना जलसंसर्गशिशिरेण शिकरिणा चन्दनरस् स्पर्शेन आलिङ्गयमान इव जलतरङ्ग मारुतेन, कमलमधुपानमत्तानाञ्च श्रोत्रहारिभिः कलहंसानां कोलाहलैराहुयमान इव विवेश ।<sup>3</sup>

While describing the vast and lonely dense forest named as *Śūnyāṭavi* the author mentions certain plants and trees like *kimśuka*, *tāla*, *kadaḷī*, *śriphala*, *kharjura*, *aśoka* etc. which are entirely different from that were grown in *Vindhyāṭavi*.

<sup>2</sup> *Ibid*, *Agastyāśrama Varṇana* p, 62.

<sup>3</sup> *Ibid Jalānvekṣaṇa varṇana*, p.377

क्रमेण चातिप्रवृद्धप्रकाण्ड - पादप-प्रायया, मालिनी लता मण्डपैर्मण्ड लिततरुषण्डया..<sup>4</sup>

The *śālmalītaruvarṇana*, description of the huge silk cotton tree standing in the middle of the dense forest *Vindhya* is a narration par excellence in which *Baṇā* underscores the harmony and mutual understandings of the other living beings as they also reflect feelings like human beings.

तस्येवंविथस्य सरसः पश्चिते तीरे राघव-शर-प्रहार- जर्जरित तरुषण्डस्य च समीपे दिग्गज-करदण्डानुकारीणा जरदजगरेण सततमावेष्टितमूलतया .. अधिपतिरिव दण्डकारत्यस्य, नायक इव सर्व वनस्पतीनाम्, सखेव विन्ध्यस्य, शाखाबाहुभिरुप गृहयेव विन्ध्याटवीमवस्थितौ महान् जीर्णः शाल्मली वृक्षः।<sup>5</sup>

The extra ordinary talent of narrating minute details of every object is clearly elucidated by the description of the python which is surrounded on the taproot of the tree, the beauty of the divine pampa lake.

तस्य च सम्प्रत्यपि प्रकटोपलक्ष्यमाण - पूर्ववृत्तान्तस्यगस्त्याश्रमस्य नातिदूरे जलनिधिपान प्रकृति - वरुणप्रोत्साहितेन... अपरसागर शङ्किभिः सलिलमादतुमवतीर्णो र्जल धरैरिव बहल-पङ्क- मलिनैर्वन करिभिरनवरतापीयमानसलिलम्, आगधमनन्तमप्रतिमम् अपां निधानं पम्पाभिधानं पद्मसरः।<sup>6</sup>

*Daṇḍaka* forest, steady flow of fresh water with the chirping sound of the waterfall , the coolness of the *Acchoda* lake along with the sweet

<sup>4</sup> *Ibid.*, Śūnyatavi Varṇana, p. 62

<sup>5</sup> *Ibid.*, Śālmalītarūvarṇanam, pp.71

<sup>6</sup> *Ibid.*, Pambāsarovaravarṇana, p.67

scent of lotus, waterlilly, and lots of trees, flowers, fruits such as *tamāla*, *nīlotpala*, *kumuda*, *kadamba*, *pundarīka*, *bhūrja nameru*, *saḥakāra*, *maricha*, *champakā*, *dhāḍima kadaḷi*, *punnāga*, *nalīnam*, *bhakuḷa* and different kinds of birds and animals namely *cakravāka*, *makara*, *kūrma*, *harita*, *kokila*, *kapiñjala*, *kapi*, *kapoṭha*, *śārika*, *śūka*, *cātaḥ*, *mayūra*, *kr̥ṣṇasāra*. etc. and groups of swans murmuring and sporting in the lake.

प्रविश्य च तस्य तरुषण्डस्य मध्यभागे मणिदर्पणामिव त्रैलोक्य लक्ष्म्या;  
स्फटिक भूमित्तहमिव वसुन्धरादेव्या .... असत्साधनमिवादृष्टान्तम्  
अतिमनोहरमाह्लाद नं दृष्टेः, अच्छोदं नाम सरो दुष्टवान्।<sup>7</sup>

Similarly he describes certain rivers, river *vetravati* with seen in the splendour of dusk, while describing the capital city of *Śūdraka (Vidiśa)*,<sup>8</sup>

तस्य च राज्ञः कलिकाल-भयपुञ्जी भूत-कृतयुगानुकारिणी त्रिभुवन  
प्रसवभूमिरिव विस्तीर्णा मज्जन्मालवविलासिनीकुचतटास्फालन  
जर्जरितोर्मिमालया जलावगाह नागतजयकुञ्जर-कुम्भ-सिन्दुर-सन्ध्याय  
मान- सलिलया उन्मद-कलहंस-कलहंस-कुल-कोलाहल-मुखरित-कूलया  
वेत्रवत्या परिगता विदिशभिधाना नगरी राजधान्यासीत्। p-19"

river *Godāvāri* that rushes past the *aśrama* of *Agastya*, which flows as a furious widow with hair tied away to one side.

<sup>7</sup> *Ibid. Accodhasarovaravarṇanam*, pp. 379 - 388

<sup>8</sup> *Ibid. Śūdrakavarṇanam*, p. 28.

“तस्माच्च दण्डकारत्यान्तः पाति सकल भुवन विख्यतम् उत्पत्तिके त्रमिव  
 भगवतो धर्मस्य.... दिशि दिशि शुकहरितैश्च कदलीवनैः श्यामलीकृत  
 परिसरं सरिता च कलशयोनि-परिपीतसागरमार्गानुगतयेव बद्धवेणिकया  
 गोदावर्या परिगतमाश्रमपदमासीत्।”<sup>9</sup>

In the same way he gives an account of river *Śipra*, while describing the majestic beauty of the city *Ujjainī*, the waves of which wash the sky as if raising the eyebrows out of indignation towards Lord *Śiva* who wears *Ganga* on his head.

"यौवन-मदमत्तमालवी-कुच-कलश-लुलितसलिलया भगवतो महाकलास्य  
 शिरसि सुर-सरितमालोक्योपजातेर्ष्येव सतत समाबद्ध-तरङ्ग-  
 भ्रुकुटीलेखया स्वमिव क्षालयन्त्या सिप्रयो परिक्षिप्ता।"<sup>10</sup>

*Bāṇa* shows his expertise while narrating the different kinds of the approach of people towards nature, some showing the sympathetic attitude towards nature who thinks that the whole multitude of living beings are interrelated with each other and hence they tried to co-exist with each other, and take great enthusiasm to protect them. On the other hand, certain ignorant people with their aggressive nature tends to create various catastrophe besides doing activities which are harmful to nature. He

<sup>9</sup> Agastyāśramavarṇaṇam, p. 65

<sup>10</sup> *Ujjainīvarṇaṇam* pp.154-170

explains this through the description of *Śabara* armies hunting in the Vindhya forest

"आकर्ण्य च तमहमश्रुतपुर्वमुपजातवेपथुरर्भकतया जर्जरित- कर्णविव रो भयविह्वलः समीपवर्तिनः.. गृह्यतां धनुः, अवहितैः, स्थीयताम् विमुच्चयान्तां श्वानः इत्यन्योन्यमभिवदतो मृगयासक्तस्य मश्रुणवम् "11

the soliloquy of the parrot *Vaiśampāyāna* at the time of his father's unexpected departure caused by the *Śabara* army.<sup>12</sup>

Along the descriptions of "*mṛgayāvarṇanam*", hunting, *Bāṇa* shows the basic animal instincts in humans giving a heart-rending account of the scattering herd of deer and other animals in flight out of fear of death, fomented by the untold cruelty of the army.

अथ नातिचिरादवानुलेपनार्द्ध- मृदङ्गध्वनिधीरेण गिरिविवर-विजम्भित प्रतिनादगम्यारेण.....शुनाञ्च सरभसविमुक्त घर्घरध्वनीनां वनान्तरव्यापिना ध्वानेन सर्वतः प्रचलितमिव तदरण्यमभवत्।।<sup>13</sup>

At this juncture *Bāṇa* gives a brief account of some flora and fauna such as *bhadramusta*, *sallakī*, *tamāla*, *khagi*, *vanagaja*, *sārameya* etc., the descriptions of the atrocities of the army and the awful and terrific situation creates a painful effect in the mind of a reader. At the same time,

<sup>11</sup> *Ibid.*, *Mṛgayāvarṇanam*, pp. 308 - 311

<sup>12</sup> *Śukadaśāvarṇana*, p.110

<sup>13</sup> *Śabarasaṅgīyavarṇana*, pp.87-88



*Bāṇa* directs our attention to the peace, tranquility and sacredness of *jābalyāśrama* which provides a relief for the tormented mind of the reader. The peaceful and serene atmosphere of the *āśrama* is filled with love, compassion and sense of co-operation exhibited through the sympathetic behaviour of *Hārīta*, Son of the Sage *Jabalī* where divine splendour prevails. *Bāṇa* refers to many trees such as *tamāla*, *nīlotpala*, *kumuḍa*, *kadamba*, *puṇḍarīka*, *bhūrja*, *nameru*, *sahakāra*, *marīca*, *champakā*, *dhāḍīma kadhaḷī*, *punnāga*, *naḷīnam*, *bhakuḷam*, and certain dried grains and fruits like *panasa*, *āmṛa*, *āmalakī*, *lavalī*, *lavaṅga* . etc. and some parrots.

"अनतिदुरमिव गत्वा दिशी-दिशी सदासत्रिहित-कुसुमफलैः ताल-तिनक  
तमाल हिन्तालबकुल बहुलैः एलालता कुलित-नालिकेरी-कलापै...  
उल्लसित-वूमकेतुशतमपि प्रशान्तोपद्रवम् परिपूर्णद्विजपति मण्डलसनाथमपि  
सदासत्रिहित-तरु गहनान्धकारम् अतिरमर्णाय मपरमिव  
ब्रह्मलोकमाश्रममपश्यम्।"<sup>14</sup>

He reveals his deep knowledge about the world of beasts, their peculiar characteristics and habits along with their morphological features.

<sup>14</sup> *Ibid, Jabalyāśrama Varṇanam*, p.119.

“अथ वचनानन्तरमेव प्रवेशितम्, उभयतः खलीन-कटकावलः पदे पदे  
कृताकुञ्चन प्रयत्नाभ्यां पुरुषाभ्यामाकृष्यमाणम्... भुजङ्गमिव  
सदागत्याभिमुखम् उदधिपुलिनमिव शङ्खमालिका भरणम् भित्तमिव  
सकलभुवनार्घाहम्, अश्वातिशय ममिन्द्रायुधमद्राक्षीत्। इन्द्रायुधवर्णनाम”<sup>15</sup>

In portraying young *Chandrapīḍa*'s coronation and conquests *Bāṇa* discloses his awareness and affinity towards nature. He begins the account by describing the elephant *Gandhamāḍana*. He also introduces the birds *Kāḷīndī* and *Pariḥāsa* and their conversation as if they are human beings with their ideas and thoughts same as that of humans.

"बहलसिन्दुररेणुपाटलेन क्षितितल दोलायमान-मुकताकलापावचूलेन  
तिर्यगावर्जित श्वेतंगङ्गप्रवाहेण तारागण-दन्तुरित-शिलातलेन मेरुगिरिण्व  
गन्धमादननुगम्यमानः"<sup>16</sup>

"अथ सहसैव त्वरितगतिः त्रिवर्णरागमिन्द्रयुधमिव कुण्डलीकृतं कण्ठेन वहता  
विद्रुमाङ्कुरानुकारि च उच्यु पुटेन मकतचद्युति पक्षतिना मन्यरगतेन  
शुकेनानुबध्यमाना..."<sup>17</sup>

*Bāṇa* attracts the mind of readers into the immortal beauty of nature through the beautiful narrations of variegated pigments of nature. He shows close attention to accuracy and details when he depicts the beauty all kind of aspects of the nature, of day and night, dawn , splendorous

<sup>15</sup> *Ibid* , *Indrāyudha Varnanam*, pp.244 - 250.

<sup>16</sup> *Ibid*, *Chandrapitasya Digvijayavarnanam*, p.244-250.

<sup>17</sup> *Ibid.*, *Kādambryābhāveśah*, pp.583-585.

moon rise, magnificent sunrise, noon, twilight etc. at different seasons and climatic changes.

"अनेन च समयेन परिणतो दिवसः.. क्षणेन चोन्मुखेन मुनिजनेनार्ध-  
विप्रकीर्णोः प्रणामाञ्जलि-सलिलैः क्षाल्यमान उवागलदखिलं सन्ध्यारागः "18

The description of the beauty of an ordinary morning of *Vindhyāṭavi* is an experience par excellence as far as a reader of literature is concerned.

"एकदा तु प्रभातसन्ध्यारागलोहिते गगनतले, कमलिनी-मधुरक्त पक्षसम्पुटे  
वृद्धं हंस इव मन्दाकिनी पुलिनादपर-जलनिधि-तटमवतरित चन्द्रमसि...19

While narrating the beauty of nature *Bāṇa* never lose his sight to mention the flora and fauna of that area like the lotus, water lilly, swan, black antelope, elephant, lion, peacock, donkey, deer, monkey, tortoise, wild buffalo, deer etc.

This kind of description absolutely appropriate to the calm and quite atmosphere of the divine *Āśrama* (*Jābalyāśrama*).

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<sup>18</sup> *Ibid.*, p.583-585.

<sup>19</sup> *Ibid,Prabhātarṇanam*, pp.79-82.

"एकदा तु नातिदूरोदिते नव-नलिन-दलसम्पुट-भिदि किञ्चिन्मुक्त पाटलिम्नि  
भगवति सहस्रमरीचिमालिनि <sup>20</sup>

Thus by portraying the dusk and night *Bāṇa* reveals his love and reverence for nature delineating different living beings simultaneously, such as *Kumuda*, *Hamsa*, *Alī*, *Kokilā*, *Kṛṣṇasāra*, *Sindhuvāra*, *Puṇḍarīka*, *Hariṇa*, *Mṛga*, *Tamāla* and so on.

From the accounts of *Bāṇa* about nature one can be sure that nature, as well as its resources, influenced human lives in different ways. While describing the maternity room after child birth several kinds of plants and herbs like *karuka* the grass used for rituals, white mustard, turmeric and sandalwood are mentioned. A goat is tied near the door, the ashes of bull-horn and molted snake skin are smoked for the health and protection of the new born. Neem leaves are smoked for enhancement of hygiene and good fortune.

"पार्थिवस्तु तनयातन- दर्शन- महोत्सव-हृत्हृदयो/पि.....

अम्भः पावकञ्च स्पृष्ट्वा विवेश ॥<sup>21</sup>

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<sup>20</sup> *Ibid*, Sūtikāgṛhavarṇana, pp.222-225

<sup>21</sup> *Idem*.Sūtikāgṛhavarṇana, pp.222-225

He also introduces several natural decorations like lotus blooms, a whisk of white flowers, the garland of Jasmine, clove buds, and sandal paste etc decorated with *Kadaḷī* Plantain.

*Bāṇa* as a great lover of nature always tried to elucidate his affection and care for the preservation of nature through his works. From his marvellous, amazing, picturesque illustrations of nature, we could conclude the fact that *Bāṇa* is unique for his in-depth erudition in every branch of knowledge and the keen sense of observation. He took special care in portraying the seasons, weather, dawn, dusk, day, night, palaces, forests, hermitage, rivers, lakes, trees, creepers, herbs, trees, birds and animals etc. in a different and inimitable style, which made him different from other authors justifying the dictum “*bāṇocchiṣṭam jagatsarvam*”.

## CHAPTER-VII

### Birds depicted in kādambarī

Sl.	Name	Malayalam	English	Family name	Scientific Name
1	हारीतः	മാടപ്രാവ്	Dove	<i>Columbidae</i>	<i>Columba livia</i>
2	चक्रवाकः	ചക്രവാകം	Brahmany goose	<i>Anatidae</i>	<i>Tadorna ferruginea</i>
3	कादम्बः	കാദംബം	Swan	<i>Anatidae</i>	<i>Answer indicus</i>
4	हंसः	ഹംസം	Barheaded goose	<i>Anatidae</i>	<i>Anser indicus</i>
5	हरितालः	ചുളുപ്രാവ്	Hārīta pigeon	<i>Columbidae</i>	<i>Caloenas maculata</i>
6	कपोतः	മാടപ്രാവ്	Dove	<i>Columbidae</i>	<i>Columba livia</i>
7	कोकिलः	കുയിൽ	Cuckoo	<i>Cuculidae</i>	<i>Cuculus micropterus</i>
8	शुकः	തത്ത	Parrot	<i>Psittaculidae</i>	<i>Pisttacula exsul</i>
9	सारसाः	കൊക്ക്	Asian open bill	<i>Ciconiidae</i>	
10	कुररः	ഞാറപക്ഷി	Pelican	<i>Pelecanidae</i>	<i>Pelecanus onrotalus</i>
11	कपिञ्जलः	വേഴാമ്പൽ പക്ഷി	Hornbill	<i>Bucerotidae</i>	<i>Ocyeros birostris</i>
12	लावकः	കാടപ്പക്ഷി	Quail	<i>Phasianidae</i>	<i>Coturnix coturnix</i>
13	चकोरः	ചകോരം	Greek partridge	<i>Phasianidae</i>	<i>Perdix rufa</i>
14	शिश्रण्डिः	മയിൽ	Peacock	<i>Phasianidae</i>	<i>Parocristatus</i>
15	अरण्यकुक्कुटः	കാട്ടുകോഴി	Jungle fowl	<i>Phasianidae</i>	<i>Gallus gallus</i>

**Fauna depicted in *kādambarī***

Sl.	Name	Malayalam	English	Family name	Scientific Name
1.	कुञ्जरः	ആന	Elephant	<i>Elephantidae</i>	<i>Elephas maximus</i>
2.	कपिः	കുരങ്ങ്	Monkey	<i>Cercopithecidae</i>	<i>Macaca radiata</i>
3.	सिंहः	സിംഹം	Lion	<i>Felidae</i>	<i>Panthera leo</i>
4.	तरक्षु	കടുവ	Tiger	<i>Felidae</i>	<i>Panthera leo</i>
5.	हरिणः	മാൻ	Deer	<i>Cervidae</i>	<i>Panolia eldii</i>
6.	वराहः	പന്നി	Pig	<i>Suidae</i>	<i>Sus scrofa</i>
7.	मृगमदः	കസ്തുരി മാൻ	Musk deer	<i>Moschidae</i>	<i>Moshchus cupreus</i>
8.	कौलेयकः	വേട്ടപ്പുടി	Slight hound	<i>Caridae</i>	<i>Canis familiaris</i>
9.	छागाः	ആട്	Goat	<i>Bovidae</i>	<i>Capra aegagrus</i>
10.	खड्गि	കാമ്യം	Rhinoceros	<i>Rhinocerotidae</i>	<i>Rhinoceros unicornis</i>
11.	सारमेयः	നായ	Dog	<i>Canidae</i>	<i>Canis lupis</i>
12.	कृष्णसारः	കൃഷ്ണമൃഗം	Black buck	<i>Bovidae</i>	<i>Antilope cervicapra</i>
13.	ऐण्येयः	കൃഷ്ണമൃഗം	Antelope	<i>Bovidae</i>	<i>Antilope cervicapra</i>
14.	शाख्रामृगः	അണ്ണാൻ	Squirrel	<i>Sciuridae</i>	<i>Funambulus palmarum</i>
15.	महिषः	കാട്ടുപോത്ത്	Wild buffalo	<i>Bovidae</i>	<i>Bubalus arnee</i>
16.	चमूरु	വെള്ളമാൻ	White deer	<i>Cervidae</i>	
17.		കഴുത	Donkey	<i>Equidae</i>	<i>Equus africanus</i>
18.	कूर्मः	ആമ	Tortoise	<i>Testudinidae</i>	<i>Testudo graeca</i>
19.	अहीरमणी	പെരുമ്പാമ്പ്	Phython	<i>Phythonidae</i>	<i>Python molurus</i>
20.	तुरगः	കുതിര	Horse	<i>Equidae</i>	<i>Equus ferus</i>

21.	मकरः	മുതല	Crocodile	<i>Crocodylidae</i>	<i>Crocodylus palustris</i>
22.	उष्ट्रः	ഒട്ടകം	Camel	<i>Camelidae</i>	<i>Camelus dromedarius</i>
23.	रुरु	ഒരിനം മാൻ	a kind of deer	<i>Cervidae</i>	
24.	रङ्कवः	ഒരിനം മാൻ	A kind of deer	<i>Cervidae</i>	

### Flora depicted in *kādambarī*

Sl.	Name	Malayalam	English	Family name	Scientific Name
1.	मरिचः	മുളക്	Chilli	<i>Solanaceae</i>	<i>Capsicum annum</i>
2.	तमालः	തമാലം	Indian bayleaf	<i>lauraceae</i>	<i>Cinnamomum tamala</i>
3.	कवकोलः	കക്കോലം	Staranise	<i>Schisandraceae</i>	<i>illicium verum</i>
4.	लवङ्गः	ശ്രാമ്പൂ	Clove	<i>Myrtaceae</i>	<i>Syzygium aromaticum</i>
5.	नारिकेलः	തെങ്ങു്	Coconut tree	<i>Areaceae</i>	<i>Cocos nucifera</i>
6.	केतकि	കൈത	Umbrella tree	<i>Pandanaceae</i>	<i>Pandanus odoratissimus</i>
7.	करीरः	കരീരം	Kair	<i>Capparaceae</i>	<i>Capparis aphylla</i>
8.	बकुलः	ഇലഞ്ഞി	Elengi	<i>Sapotaceae</i>	<i>Mimusops elengi</i>
9.	दाडिमः	മാതളം	Pomgranate	<i>Lythraceae</i>	<i>Punica granatum</i>
10.	ताम्बुलः	വെറ്റില കൊടി	Beetel vine	<i>Piperaceae</i>	<i>Piper bettle</i>
11.	पूगः	കവുങ്ങു്	Arecanut tree	<i>Areaceae</i>	<i>Areca catechu</i>
12.	एलः	ഏലം	Cardamom	<i>Zingiberaceae</i>	<i>Elettaria cardamomum</i>
13.	रक्तचन्दनः	രക്തചന്ദനം	Red sandal	<i>Fabaceae</i>	<i>Pterocarpus santalinus</i>
14.	चन्दनः	ചന്ദനം	Wood Sandal wood	<i>Santalaceae</i>	<i>Santalum album</i>
15.	वेतसः	ആറ്റുവഞ്ചി	Vetasa	<i>Euphorbiaceae</i>	<i>Homonoia riparia</i>
16.	अरविन्दः	താമര	Lotus	<i>Nelumbonaceae</i>	<i>Nelumbo nucifera</i>
17.	कमलः	ചെന്താമര	Red lotus	<i>Nelumbonaceae</i>	<i>Nelumbo nucifera</i>
18.	अगुरुः	അകീർ	Agar wood	<i>Thymelaeaceae</i>	<i>Aquilara malaccensis</i>



19.	सहकारः	മാവ്	Mango tree	<i>Anacardiaceae</i>	<i>Mangifera indica</i>
20.	सारसमः	താമര	Lotus	<i>Nelumbonaceae</i>	<i>Nelumbo nucifera</i>
21.	सर्षपः	കടുക്	Indian mustard	<i>Brassicaceae</i>	<i>Brassica juncea</i>
22.	सित सर्षपः	വെള്ള കടുക്	White mustard	<i>Brassicaceae</i>	<i>Sinapis alba</i>
23.	अरिष्टः	വേപ്പ്	Neem	<i>Meliaceae</i>	<i>Azadirachta indica</i>
24.	कुवलयः	നീലത്താ മര	Blue lotus	<i>Nymphaeaceae</i>	<i>Nymphaea nouchali</i>
25.	अम्बूरुहः	താമര	Lotus	<i>Nelumbonaceae</i>	<i>Nelumbo nucifera</i>
26.	कुमुदः	ആമ്പൽ	Waterlilly	<i>Nymphaeaceae</i>	<i>Nymphaea lotus</i>
27.	कदलिः	കദളി വാഴ	Plantain	<i>Musaceae</i>	<i>Musa acuminata</i>
28.	कार्पासः	കുരുവ രുത്തി	Indian cotton	<i>Malvaceae</i>	<i>Gossypium herbaceum</i>
29.	हरिद्रा	മഞ്ഞൾ	Turmeric	<i>Zingiberaceae</i>	<i>Curcum longa</i>
30.	तिलकः	തീലകം	Peacock chaste tree	<i>Lamiaceae</i>	<i>Vitex altissima</i>
31.	हिन्तालः	ഇന്താൽ	Hintala	<i>Cycadaceae</i>	<i>Cycas circinalis</i>
32.	शीघ्रुः	മുരിങ്ങ	Drumstick	<i>Moringaceae</i>	<i>Hyperanthera moringa</i>
33.	लोधः	പാച്ചോറ്റി	Lodh tree	<i>Symplocaceae</i>	<i>Symplocos anamallyana</i>
34.	चूतः	മാവ്	Mango tree	<i>Anacardiaceae</i>	<i>Mangifera indica</i>
35.	हीवेरं	ഇരുവേലി	Morord	<i>Lamiaceae</i>	<i>Plectranthus vettiveroides</i>
36.	सिन्धुवारः	നെച്ചി	Lamiaceae	<i>Chaste tree</i>	<i>Vitex negundo</i>
37.	मज्जिष्ठाः	മഞ്ചട്ടി	Indian madder	<i>Rubiaceae</i>	<i>Rubia cordifolia</i>
38.	भद्रमुस्तः	കഴിമു ത്തങ്ങ	Chufa sedge	<i>Cyperaceae</i>	<i>Cyperus esculentus</i>
39.	खर्जूरः	ഇന്തപ്പന	Datepalm	<i>Arecaceae</i>	<i>Phoenix dactylifera</i>
40.	कुशः	ദർഭ	Halfa grass	<i>Poaceae</i>	<i>Desmostachya bipinnata</i>
41.	मुज्जः	മുജന്തപ്പുല്ലി	Munja grass	<i>Poaceae</i>	<i>Saccharum munja</i>
42.	राजीवः	നീലത്താ മര	Blue lotus	<i>Nymphaeaceae</i>	<i>Nymphaea nouchali</i>
43.	अरविन्दः	ചെന്താമര	Red lotus	<i>Nymphaeaceae</i>	<i>Nelumbo nucifera</i>
44.	कल्हारः	നീലത്താ മര	Blue lotus	<i>Nymphaeaceae</i>	<i>Nymphaea nouchali</i>
45.	सारसम्	താമര	Lotus	<i>Nelumbonaceae</i>	<i>Nelumbo nucifera</i>
46.	अम्बूरुहः	താമര	Lotus	<i>Nelumbonaceae</i>	<i>Nelumbo nucifera</i>

47.	उत्पलः	നീലത്താമര	Blue lotus	<i>Nymphaeaceae</i>	<i>Nymphaea nouchali</i>
48.	आमलकः	നെല്ലിക്ക	Indian gooseberry	<i>Phyllanthaceae</i>	<i>Phyllanthus emblica</i>
49.	शाल्मलिः	ഇലവ്	Silk cotton tree	<i>Malvaceae</i>	<i>Bombax ceiba</i>
50.	पलाशः	പ്ലാശ്	Palash	<i>Fabaceae</i>	<i>Butea monosperma</i>
51.	करञ्जः	ഉങ്ങ്	Indian beech	<i>Fabaceae</i>	<i>Millettia pinnata</i>
52.	किंशुकः	മുള	Bamboo	<i>Poaceae</i>	<i>Bambusa bambos</i>
53.	तालः	കരിമ്പന	Palmyra palm	<i>Areaceae</i>	<i>Borassus flabellifer</i>
54.	श्रीदुमः	കുവളം	Bael	<i>Rutaceae</i>	<i>Aegle marmelos</i>
55.	अशोकः	അശോകം	Asoka	<i>Fabaceae</i>	<i>Saraca asoca</i>
56.	तालफलः	ഇത്തപ്പഴം	Date palm	<i>Areaceae</i>	<i>Phoenix dactylifera</i>
57.	चम्पकः	ചെമ്പകം	Chempaka	<i>Magnoliaceae</i>	<i>Michelia champaca/Magnolia champaceae</i>
58.	प्रियङ्गुः	ഞാഴൽ	Priyangu (Droopu leaf)	<i>Meliaceae</i>	<i>Laia elaeagnoidea</i>
59.	शिरीषः	നെൻമേനിവാക	Libbek	<i>Fabaceae</i>	<i>Albizia lebbek</i>
60.	शेफालिका	കരിനൊച്ചി	Chaste tree	<i>Lamiaceae</i>	<i>Vitex negundo</i>
61.	उत्पलः	നീലത്താമര	Blue lotus	<i>Nymphaeaceae</i>	<i>Nymphaea nouchali</i>
62.	कल्हारः	നീലത്താമര	Blue lotus	<i>Nymphaeaceae</i>	<i>Nymphaea nouchali</i>
63.	नीपः	കടമ്പ്	Kadam	<i>Rubiaceae</i>	<i>Neolamarckia cadamba</i>
64.	पुण्डरीकः	വെള്ളത്താമര	White lotus	<i>Nymphaeaceae</i>	<i>Nymphaea nelumbo</i>
65.	भुर्जः	ഭൂർജപത്രം	Birch tree	<i>Betulaceae</i>	<i>Betula alnoides</i>
66.	नमेरुः	രുദ്രാക്ഷം	Bead	<i>Meliaceae</i>	<i>Melia azedarach</i>
67.	पुन्नागः	പുന്നാഗം	Indian-Laurel	<i>Calophyllaceae</i>	<i>Calophyllum inophyllum</i>
68.	कमलः	താമര	Lotus	<i>Nelumbonaceae</i>	<i>Nelumbo nucifera</i>
69.	शालुकः	കാച്ചിൽ	Greateryam	<i>Dioscoreaceae</i>	<i>Dioscorea alata</i>
70.	सरलः	സരളവൃക്ഷം	Sarala tree	<i>Dipterocarpaceae</i>	<i>Diptero carpus zeylanicus</i>
71.	सालः	സാലവൃക്ഷം	Sal tree	<i>Diptero carpaceae</i>	<i>Shorea robusta</i>
72.	अर्जुनः	നീർമരുത്	Arjun tree	<i>Combretaceae</i>	<i>Terminalia arjuna</i>

73.	मुञ्जः	പൂൽവർഗ്ഗത്തിൽപ്പെട്ട ഒരു സസ്യം	One kind of grass	<i>Poaceae</i>	<i>Imperial arundinacea</i>
74.	तालः	കരിമ്പന	Palmyra palm	<i>Arecaceae</i>	<i>Borassus flabellifer</i>
75.	गुग्गुलुः	ഗുഗ്ഗുലു	Guggulu plant	<i>Burseraceae</i>	<i>Commiphora wightii</i>
76.	वेत्रलता	ചുരൽ	Rattan reed	<i>Arecaceae</i>	<i>Calamus rotag</i>
77.	दुर्वा	കറുക	Bahma grass	<i>Poaceae</i>	<i>Cynodon dactylon</i>
78.	शैवलः	കരിമ്പായൽ	Hornworts	<i>Ceratophyllaceae</i>	<i>Ceratophyllum muricatum</i>
79.	शालि	നെല്ല്	Paddy	<i>Poaceae</i>	<i>Orizya sativa</i>
80.	अगस्त्यः	അകത്തി	Swamp pea	<i>Fabaceae</i>	<i>Sesbania grandiflora</i>
81.	अलाबु	കോവൽ	Little gourd	<i>Cucurbitaceae</i>	<i>Coccinia grandis</i>
82.	श्यामाकः	ചാമ	Little millet	<i>Poaceae</i>	<i>Panicum sumatrense</i>
83.	कर्कन्धु	ലന്തമരം	Jujube	<i>Rhamnaceae</i>	<i>Zizyphus nummularia</i>
84.	पनसः	പ്ലാവ്	Jackfruit tree	<i>Moraceae</i>	<i>Artocarpus hirsutus</i>
85.	लकुचः	ആഞ്ഞിലി	Jungle jack	<i>Moraceae</i>	<i>Artocarpus hirsutus</i>
86.	नीवारः	വരിനെല്ല്	Bengal wild rice	<i>Poaceae</i>	<i>Hygroryza aristata</i>
87.	करवीरः	അരളി	Indian oleander	<i>Apocynaceae</i>	<i>Nerium oleander</i>
88.	गवधुकः	കാട്ടുഗോതമ്പ്	Joh's tears	<i>Poaceae</i>	<i>Coix lacryma</i>
89.	गोलिका	കാരുവേമ്പ്	Garuga	<i>Burseraceae</i>	<i>Garuga pinnata</i>
90.	शतपत्रः	പനീനീർപൂവ്	Hundred leaved rose	<i>Rosaceae</i>	<i>Rosa centifolia</i>
91.	पिप्पलिः	തിപ്പലി	Long pepper	<i>Piperaceae</i>	<i>Piper longum</i>
92.	सप्तपर्णः	ഏഴിലം പാല	Devil tree	<i>Apocynaceae</i>	<i>Alstonia scholaris</i>
93.	शमि	വഹ്നിമരം	Sami tree	<i>Fabaceae</i>	<i>Prosopis cineraria</i>

## CHAPTER VIII

### CONCLUSION

Ancient Indians considered nature as an integral part of their life and they realised the fact that, the whole multitude of living beings on the earth are interrelated with each other, Hence they had adopted and practised a lifestyle of co-existence with nature and other living beings around them and in full harmony with nature. Besides these, they had spent the major part of their life in the dense forests. This mode of life helped them to observe, study, experiment, identify and differentiate every substance in nature.

Along with their keen observation skill and discriminative power, ancient Indians realised certain facts about the nature of the universe and tried to inculcate this knowledge into their daily life for a better living. This fact is reflected in the early Vedic texts, *Purāṇas*, *Śruti* and *Smṛti* texts as well as in other literary works in Sanskrit. In the entire hymns of *R̥gveda*, we could find the worship of nature which indicate the fact that the life of ancient Indians was closely associated with nature. Moreover, they give an account of certain plants and animals, their classifications, the

necessity of rain for high yield for their crops.<sup>1</sup> They fetched their livelihood from nature and took shelter in nature. Nature provided them and their children, cattle and property, protection from the natural calamities, enemies and wild beasts.

Besides that, *Ṛgvedins* had deep knowledge about the medicinal values of plants. In the *ouśadhisūkta* of the IX the *maṇḍala* of the *Ṛgveda*, there is detailed description of about 99 medicinal plants.

Similarly, in *Atharvaveda* mention is made of nearly 288 medicinal plants along with their medicinal properties healing certain diseases. This Veda also discusses various functions of the plants. *Yajurveda* also deals with 82 plants. In the *Brāhmaṇas* of each Vedas, there are the description of some usages of plants for sacrificial purposes along with the various functions of plants.

The observation and study of plants and nature in the ancient times continued in the epic and *purānic* times. This study, later on, developed into a composition of scientific works on plant science, *Āyurveda*, animal husbandry, astronomy and its subsidiaries. Several books were written on

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<sup>1</sup> *Ṛgveda*, X, Vishveswaranand Vedic Research Institute (ed), 1964

the nature and properties of plants, their usages in the treatment of man and animals. They considered plants and nature and their preservation as an integral part of life as these were essential for their survival and progress as a pastoral society. With their keen observation power and discriminative power, they classified plants based on their peculiarities and features such as shape, similarity, colour etc. Besides that they were very much interested to comprehend the morphological, physiological and agronomical aspects of plants, propagation methods and appropriate manures for getting high yield for their crops.

They classified land on the basis of the contours and fertility of the soil and assured irrigation facilities into them. Besides they developed their own methods of cultivation, propagation of seeds, procurement and retention of agricultural products and reclamation of land. They were conversant with various methods of propagation of plants such as transplantation, sowing, cutting and grafting.

*Arthaśāstra*, *Manusmṛti*, etc. discussed the economic value of plants, emphasised the necessity of preservation of plants and imposed certain punishment for those who inflicted unnecessary harm to the environment and nature.

This kind of awareness, wisdom, love, affection and consideration towards nature was inherited through ages by the ancient people which may be traced in the later Sanskrit literary, philosophical, scientific and technical literature. Prominent writers like *Bāsa*, *Kālidāsa*, and *Bhavabhūti*, *Māgha*, *Bāṇabhaṭṭa* etc. profoundly illustrated nature in its variegated colours providing us even the minute details of nature.

*Bāṇabhaṭṭa* also was a poet who was very much attracted by the marvellous beauty of nature. He had lost his parents at his very early age and hence lead a wandering life not being controlled by anybody. During this time he acquired vast knowledge about nature and human life apart from thorough learning of different branches of science namely Veda, *Vedānta*, *Nyāya*, *Vaiśeṣika*, *Mimāṃsa*, *Vyākaraṇa*, etc. Besides that he had a deep awareness of different lands, climates, cultures, traditions, customs and rituals. His magnetic power of descriptions and very arduous observation skill differentiates him from the other writers. In his works *Bāṇa* carefully describes the whole phenomenon of nature including their flora and fauna in a picturesque and expressive manner.

*Bāṇa* is successful in elucidating clearly his erudition about different kinds of flora and fauna which existed at his time. Through his

description of forests valley, waterfalls, ponds. etc., *Bāṇa* unveils his unrivalled ability to delineate the beauty of nature in his magnificently eloquent style. He has an extraordinary power to illustrate each and every minute detail of his object of his description in a very appropriate style. Through this kind of creative skill *Bāṇa* provides maximum details about the harmonious life of wild animals and a realistic account of tremendous trees, beautiful flowers and thick creepers in the dense forest. He also portrays the tranquil atmosphere of forest with its sweet and soft music, beauty of dawn, with sweet and soft music of some intoxicated birds, the incessant flowing of rivers and cool and serene lakes with plenty of lotuses, sacred hermitages, animals and birds living in harmony in the hermitages, the soft and gentle touch of the breeze etc. At the same time *Bāṇa* is not averse in describing the brutality of men shown towards nature and its living beings as shown in his description of the '*sabara* army'<sup>2</sup> and the impact of natural calamities as seen in the narration of wildfire at summer season in the *Harṣacarita*<sup>3</sup> and the terrible and pathetic situations like the painful state of the wild buffalo which lost its infant and stunting situation of a female elephant and its calf at the death of the male elephant.

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<sup>2</sup> *Kādambari, Sabaramṛgayā varṇnam*, Chowkamba Sanskrit Samsthan, Varanasi, 1990. pp.53-58.

<sup>3</sup> *Harṣacaritam*, II, Chaukhamba Sanskrit Samstan, Varanasi, pp.50-52



Nature is capable of kindling denote different kinds of emotions of human beings. Descriptions of sunset, moonrise, twilight, breeze, serene beauty, the fragrance of flowers etc. arouses the feelings and emotions in the living being and reflect their sentiments and state of mind. Bāṇa describes each situation in his work in an appropriate background with the description of nature which is capable of providing much emphasis, beauty and effect to his narration enriching his style of presentation.

His account of different seasons is par excellence with the charming and real and genuine presentation of certain plants flowers and accurate habits and actions of some animals, birds etc. in its entirety. The description of the river *Vetrāvati*<sup>4</sup> The *Godāvari*<sup>5</sup>, lake Pampā and its surroundings<sup>6</sup>, river *Śīprā*<sup>7</sup> *Acchodā* lake.<sup>8</sup>etc are best examples for his exceptional narrative skill.

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<sup>4</sup> *Śūdrakavarṇanam*, Kādambari, Chowkamba Sanskrit Samsthan, Varanasi, 1990. pp.17

<sup>5</sup> *Agastyāśramavarṇanam*, Kadambari, Chowkamba Sanskrit Samsthan, Varanasi, 1990. pp.64

<sup>6</sup> *Pampāsarovara Varnanam*, Kādambari, Chowkamba Sanskrit Samsthan, Varanasi, 1990. pp.67

<sup>7</sup> *Acchoda lake*, Kādambari, Chowkamba Sanskrit Samsthan, Varanasi, 1990. pp.373

<sup>8</sup> *Bāṇabhata. Ujjaini Varṇana*, Kādambari, Chowkamba Sanskrit Samsthan, Varanasi, 1990. p.154-170.

*Bāṇa*'s illustration of some sacred hermitages and its surroundings, the compassion and attention shown towards the nature and other living beings by the inhabitants along with the description of the serene atmosphere of the hermitage of the sage *Jābali* and *Divākaramitra* are worth mentioning<sup>9</sup> as they encompass the richness, nobility, unity, love and affection, of hermit life. The animals and birds in the hermitage being in company with sages learned the performance of different rites, some monkey's are doing *caitya* rites, highly devoted parrots teaching *abhidharmakośa*, *śārikas* giving religious instruction, owls attending the *jātaka* stories, calm lions dwelling freely, lion cubs along with some deer and young pigeons expressing their love and affection through some kind of gestures.<sup>10</sup>

*Bāṇa*'s erudition pertaining to agriculture is revealed through his description of forest village in the seventh chapter of **Harṣacarita**. He proves his observation skill through the explanation of various kind of wild grains in the granaries and discussion about huge banyan trees, cowsheds made of dry branches, tiger traps, rice lands, fields and their

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<sup>9</sup> *Jabalyāsrama varṇana, Kādambari* Chowkamba Sanskrit Samsthan, Varanasi, 1990. p.115

<sup>10</sup> *Harṣacarita*, Chaukamba Sanskrit Samstan, Varanasi, VII, p.832

fertile black soil, proper irrigation facilities for cultivation of crops, cool drinking arbours for the travelers, foresters appointed to safeguard the forest etc.<sup>11</sup> He gives a brief account of about different kinds of crops like rice, wheat, barley etc. along with the picturesque description of the *janapada*.<sup>12</sup> with singing herdsmen mounted on the buffaloes, grazing cows in the pasture land followed by sparrows looking for flies, group of camels, etc.

Bāṇa elaborately discusses various kinds of plants, flowers, birds, animals, insects with an exhaustive description of their characteristic features and different traits based on their colour, shape, nature division, gestures, changes in them in different climatic conditions, seasons, etc. He also gives an account of different kind of animals in his work. From these accounts, we can arrive at the different flora and fauna existent at that time.

Based on these facts about the description of nature we could realise the that ancient Indians were aware of the importance of living organisms on earth and their relationship with each other which are

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<sup>11</sup> *Harṣacarita*, Chaukamba Sanskrit Samstan, Varanasi, VII. p.832

<sup>12</sup> *Harṣacarita*, Chaukamba Sanskrit Samstan, Varanasi,III, pp.258-259

inevitable for a smooth and peaceful living on the earth. Hence, they observed nature closely, studied it, nurtured it and protected it.

*Bāṇabhaṭṭa* also, adorns an iconic status in Sanskrit literature as a great author who composed his works imbibing the spirit of such heritage with regard to his approach towards nature as envisaged in the Vedas, *Purāṇas*, Epics, literary, philosophic and scientific works, and adding them with his observational capacity, creative ability and narrative power.

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