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ANALYSIS ON THE SCIENCE OF THE TREATMENT OF FLORA AS DEPICTED IN THE BṚHATSAMHITĀ

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ABSTRACT

"Flora" refers to all the plants that can be found in a certain area. There are many different kinds of plants that fall within this category. Plants have played a critical part in human evolution, as is well-documented. Plants were the primary source of sustenance in ancient India. An understanding of plants and trees developed in ancient India through the study of ancient writings such as Vedas and Epics as well as other works including materials such as Caraka-Sahiti, the Su'ruti-Sahiti and such other works having information about plants and trees. It was known as Vkyurveda, or the science of plants, in ancient India. What the Bhatsahita reveals about the science of treating plants as a whole. The management of plants is elegantly described in the Vkyurveda chapter of the Bhatsahit. Author Varhamihira lays out the various aspects of plant care, including the treatment of seeds, the planting of trees, the method of sustenance, and the treatment of damaged plants, in this chapter of his book Varhamihira depicts the science of flora care in the Bhatsahita, and this work aims to mirror that science.

Keyword: Bṛhatsamhitā, flora, Vṛkṣāyurveda, treatment, botanical science

1. INTRODUCTION

A region's flora is the natural plant life that grows there. In Roman mythology, flora was the goddess of plants, flowers, and fertility, and her Latin name is flora. flora is defined by the Oxford English Dictionary as "the plant life of a given geographical area, historical period, or environmental context" [1]. This means that the term "flora" encompasses a wide range of plants. Plants have been essential to human survival from the dawn of humanity. Plants alone are responsible for the existence of both humans and animals. Without plants, life would be a lot more difficult to manage. Aside from these things, they're the ones that produce them.

A wide variety of plants are described in religious rites, hermitages, gardens, kings forts, and so on and so forth in the ancient Sanskrit literary works.. It's clear from all of these descriptions that plants played an important role in the rise of ancient civilizations and cultures.

Providing for daily needs including food, drink, shelter, and clothes, people in ancient India relied on plants. Plants were also used for healing various ailments. Ancient Indians were able to learn about a wide range of plant sciences because of their close contact with plants, including plant morphology and physiology, plant ecology and taxonomy. An understanding of plants and trees developed in ancient India through the study of ancient writings

such as Vedas and Epics as well as other works including materials such as Caraka-Sahiti, the Su'ruti-Sahiti and such other works having information about plants and trees. Pre-Vedic Indians had to study plants in a scientific manner because they relied on them for food and other necessities, according to these ancient books. It was known as Vkyurveda, or the science of plants, in ancient India.

In the field of astrology and astronomy, the Bhatsahit of Varhamihira is regarded as one of the most illustrious works. It has a total of 106 chapters. Astrology, geography, meteorology, planetary motions and eclipses, architecture and the management of plants and the growth of crops are just some of the topics covered in this book. Verses in a variety of metres make up the text. Dr. H. Kern, a German indologist, published this magnificent Sanskrit work in *Bibliotheca Indica*, and he also published an English translation in the *Journal of the Royal Asiatic Society of Great Britain and Ireland* (1870 AD to 1874) as a series of essays. "Nine-Jewels" adorned the palace of Vikramditya of Ujjain, Varhamihira (505 A.D.-587 A.D.), is the author of this work. In the 10th century A.D., Bhaotpala (also known as Viviti) published an extensive commentary on the Bhatsahit. In the part on Vkyurveda, Bhaotpala uses citations from three ancient authors, Kyapa, Parara, and Srasvata, to explain the recommendations. Treatises attributed to these authors are most likely focused on the science of agriculture.

2. DIFFERENT ASPECTS OF THE SCIENCE OF THE TREATMENT OF THE PLANTS

The term vkyurveda is first mentioned in the Arthastra of Kauilya. Traditionally, it has been said that the Director of Agriculture must be well-versed in all aspects of agricultural practise (kitantra), water divination (ulba), plant treatment (vkyurveda), and the timely collection of all types of seeds. 4 Botanical science was founded on the study of plants in the distant past, according to the valuable resources found in these works.

According to the Bhatsahit, chapter 50 is termed "vkyurveda," or the science of plant therapy. There are 31 verses in all. This chapter of the vkyurveda includes themes such as the selection of the correct soil for gardening, grafting and watering, as well as the treatment of plants in a diseased state. When Varhamihira is given a limited amount of time to tell his story, he must condense everything to fit into a single chapter. Only a few of the most essential techniques and methodologies have been presented. There is only so much room in the book to discuss plant health and longevity. In other chapters of the book, the author has also documented some relevant facts. The Bhatsahit reveals various facets of the science of plant treatment under the following headings:

- i. Treatment of Soil
- ii. Treatment of Seeds
- iii. Method of Planting Trees
- iv. Method of Nourishment

v. Diseases and Treatment of Diseased Plants

i) Treatment of Soil: Varhamihira encourages the development of gardens at the beginning of the vkyurveda chapter of the Bhatsahit. The author of this text has done an excellent job addressing the topic of tree treatment as it pertains to gardening. Town planning, housing development, and the construction of tanks are all strongly related to further gardening. Soft soil is an asset when it comes to gardening. All tree species thrive on soil that is rich in organic matter. The author discusses soil treatment with sesamum in relation to modern agriculture's use of green manure. One must first plant sesame seeds in order to harvest the seeds, which must be crushed when they open. It is a good idea to crush the blossoming sesamum plants and allow them to mix with the soil to prepare the soil for subsequent cultivation. The soil will be treated using this method for the first time. Green manure was used to maintain soil qualities throughout the time period without causing any harm to the soil. Another popular belief is that if sesamum crops fail to thrive in a certain soil, nothing else can thrive there. For flower and fruit cultivation, the ancient agriculturalist recommended a soil rich in sesamum, black-grams and green-grams.

ii) Treatment of Seeds: Any seed that is to be sown should be treated first to encourage inflorescence and fructification. In order to avoid infection, pest infestations, and a faster germination, seeds must be pre-treated before planting. This will help to ensure that trees are getting the proper nutrients they need to

thrive. Pre-treatments of seeds are mentioned in Varhamihira's literature. For planting, only fruit-bearing tree seeds that have fallen on their own are acceptable. All seeds must be steeped in cow's milk for 10 days, according to Varhamihira. They must be removed from the intestines on a daily basis using ghee-coated hands. The seeds are then fumigated with deer and hog flesh after being properly smeared with cow dung. As a final step, the seeds should be sown in soil that has already been treated with sesame oil [6]. There are a number of procedures outlined in the Bhatsahit by Varhamihira to help promote the growth of lush stems and leaves. Tamarind (tintii) seeds and wood-apple (kapittha) seeds are specifically mentioned.

iii) Method of Planting Trees: In India, the study of planting dates back thousands of years. The Bhatsahit contains a typically lovely account of planting. Gardening on the banks of lakes, ponds, etc. is recommended by the author. Without shady trees, the banks of rivers, lakes, and other waterways will be unpleasant and unappealing. As a result, the author believes that gardens should be planted along the banks of lakes, rivers, and other waterways. In reality, the tanks and the gardens complement one another. For the tank's bank to be shaded by arjuna, Indian oak, banyan, pipal, burflower, rose-apple, cane, philippine violet, palm tree, tamanu nut tree, ashok tree, bullet wood (bakula), neem, arisa, lebbek tree, and beautyberry (priyagu), [11] the banks of the tank should be covered with arjuna, Indian oak, banyan, pipal, burflower, rose-apple, cane, tamanu nut tree, lebbek tree, and

beautyberry [11]. Auspiciousness is attributed to these trees. A house's garden should have neem and aoka trees as well as tamanu nut trees, lebbek trees, and beautyberries, all of which are beneficial to the health of a home. Kyapa, on the other hand, agrees with this sentiment. He also includes campaka (campaka), udumbara (cluster fig), and prijtaka (Indian coral tree) Since the dawn of time, certain trees have been held in high esteem and revered, and some are even worshipped. To put it another way, trees in India are linked to the spiritual life of the country. As a result, planting trees of this sort is given a lot of attention.

iv) Method of Nourishment: The primary source of food for plants is the soil, which is the most crucial factor. Plants can obtain the nutrients they need from the fertile soil. In a condition of solution, plants extract nutrients from the soil and use them as energy. Manuring soils in agricultural activity was a science well-understood by ancient humans. The Bhatsahita contains a comprehensive manual on manure management. Two hakas (6 kg 146 grammes) of powdered goats' and sheep's dung, one haka (3 kg 73 grammes) of sesamum powder, one prastha (768 grammes) of wheat particles, and one tul (4 kg 800 grammes) of beef, along with 12 kg 228 grammes of water, should be applied to the roots of the plant to increase flower and fruit production [20]. However, it's worth noting that this metric applies to just one plant. Similarly, in this context, Kyapa directs the same tactics to all types of plants. With regard to plant feeding, the root is considered to be of paramount importance. Indian scholars came to

understand the role of sun energy and air in the digestion of food materials that are absorbed through the tree roots. Instructions on how to plant trees saplings with a certain distance between them are included in the text to ensure that they get enough sunshine and wind movement does not pose a problem.

v) Diseases and Treatment of Diseased Plants: People in the ancient Indian civilizations were extremely concerned about plant diseases and the formulations for their treatment. They've done everything they can to figure out what causes these ailments and how to treat them. According to the Sanskrit literature, ancient Indian scholars were well aware of plant diseases and pests. They used organic insecticides and methods of agricultural growing that were more environmentally friendly. The Atharvaveda mentions the destruction of crops by many sorts of reptiles and pests. When it comes to human diseases such as jaundice, dropsy, emaciation, and defects of the finger, nose, etc., plants also suffer from comparable ailments such as the commencement of disease, displacement of flower, fruits; leaves; and bark [22]. External and internal morphological divisions of plants are discussed in the Bhadrayakopaniad in relation to the analogical description of the purua (creator) [23]. The description of Bhadrayakopaniad leads one to believe that plants are susceptible to various diseases as well.

Varhamihira depicts the science of plant disease treatment in his Bhatsahit. According to Varhamihira, plant ailments can be healed with the appropriate use of

medications. In the Bhatsahit, he takes notes on the natural causes of plant illness. A plant can become infected by disease when exposed to low temperatures, high winds, or a blazing sun. 24 The leaves turn pale-white, the buds do not form, the brunches dry up, and the sap (rasa) leaks out of sick plants [25]. The disappearance of branches, stems, foliage, fruits, shadow and leaves and a progressive loss of lustre are, according to Kyapa, symptoms of plant illnesses brought on by coldness, severe heat, excessive rain, dry wind and the mixing of roots from various species.

CONCLUSION

Varhamihira or his predecessors' contemporaries or predecessors had appropriate knowledge of plant treatment, according to the foregoing discussion. During that time period, the majority of daily necessities like building materials, food, clothes, furniture, idols, medicines, and other household items were made entirely of trees. Aside from that, trees were used to make a variety of commercial goods during that time period. Perfumes, beds, and other decorative objects were produced specifically for the royal households. Planting trees to enhance the aesthetics of public and private spaces was also common. This was also linked to environmental protection. As a whole, human humans had a strong affinity for trees. As a result, the people learned about plant treatment and put it into practise. Agriculture still uses many of the techniques that were used throughout the era. Organic treatment is still favoured, much like it was back then. In fact, it's gaining momentum at a rapid pace. It is possible that the right application of these

technologies could result in a paradigm shift in the agricultural sector.

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5. mṛdvībhūḥsarvavṛkṣāṇāmhitātasyāmtīlānv apet / puṣpitāmstāmścamṛdnīyātkarmaitatpratha māmbhuvaḥ // Bṛhatsamhitā, 55.2 vāsaraṇīdaśadugdhabhāvitāmbjāmājyayut ahastayojitam / gomayenabahuśovirūkṣitamkrauḍamārgapi śitaiścadhūpitam // māmsasūkaravasāsamanvitāmropitam ca parikarmitāvanau / kṣīrasaṃyutajalāvasecitāmjāyatekusumayu ktameva tat // Ibid.,55.19-20
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dineśoṣitamarkapādaimārsamvidhistveṣatat
o'dhiropyam //
hastāyataṁtaddviguṇaṁgaviraṁkhātāvāṭa
ṁproktajalāvapūrṇam /
śuṣkaṁpradagdhāṁmadhusarpiśā tat
pralepayedbhasmasamanvitena //
sūrṇīkṛtairmāṣatilaīryavaiśvaprapūrāyenmṛ
trikayāntarasthaiḥ /
matsyāmiśāmbhassahitaṁ ca
hanyādyāvadghanatvaṁsamupāgataṁ tat //
uptaṁ ca
bījaṁcaturṅgulādhamatsyāmbhasāmāmsaj
aliścasiktam /
vallibhavatyāśusubhapravālāvismāpanīmu
ṇḍapamāvṛṇoti // Ibid., 55.22- 26

9.
śataśo'ṅkolasambhūtaphalakalkenabhāvita
m /
etatrailenavābījaṁśleṣmātakaphalenavā //
vāpitaṁkarakonmiśramṛditatkṣaṇajanmaka
m /
phalabhārānvitāśākhābhavatītikimadbhuta
m// Ibid.,55.27-28

10.
śleṣmātakasyabījaniniṣkulīkṛtyabhāvayetpr
ājñāḥ /
aṅkolavijjalādbhiśchāyāyāṁsaptakṛtvaiva
m // māhiṣagomayaghrṣṭānyasyakarīṣe ca
tāniniḥkṣipya /
karakājalamṛdyogenyuptānyahnāphalakarā
ṇi // Ibid.,55.29-30