

SURPALA' S VRIKSHAYURVEDA: A RARE GEM IN THE FIELD OF HORTICULTURE**Sonal Singh Kushwaha**

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**ABSTRACT**

Vrikshayurveda, a 10th-century treatise written by Surpala, encompasses a comprehensive system of knowledge and practices for the optimal growth, health, and well-being of plants. It also incorporates the study of plant diseases and their remedies, including natural methods for pest control and plant rejuvenation. This ancient science provides valuable insights and practical guidelines for nurturing the health and vitality of plant life. As the world seeks sustainable alternatives to safeguard our planet's future, *Vrikshayurveda* offers a beacon of wisdom, reminding us to cultivate not only the earth but also our profound connection with nature. This review consists of a brief summary of the subjects covered in the text, along with the journey covered by the manuscript from London to India.

Key words: *Ayurveda*, *Vrikshayurveda*, *Surpala*, Horticulture, Agriculture

INTRODUCTION

Vrikshayurveda, a Sanskrit term meaning "the science of plant life," [1] is an ancient Indian system of knowledge that encompasses the study, cultivation, and nurturing of trees and plants. Rooted in the Vedic tradition, *Vrikshayurveda* has been passed down through the ages as a profound guide for understanding the holistic well-being of plants and their interactions with the environment. Originating from the Vedas, the

sacred scriptures of ancient India, *Vrikshayurveda* embodies a comprehensive understanding of plant life, incorporating principles from various disciplines such as botany, ecology, agriculture, and spirituality. It emphasizes the harmonious relationship between humans, plants, and the natural world, viewing plants not merely as resources but as living beings deserving of care and respect. *Vrikshayurveda* recognizes the

interdependence of plants with celestial bodies and the influence of cosmic energies on their growth cycles. Surpala also wrote some miraculous and fancy ideas that do not fit in today's world and needs further research to provide them with much-needed support or proof. In recent years, *Vrikshayurveda* has garnered renewed interest as societies seek sustainable solutions to pressing environmental challenges. Its emphasis on organic farming, conservation of natural resources, and ecological balance aligns with the growing global consciousness towards sustainable living and environmental stewardship.

Author

There is no special information available on the identity of *Surpala*. On the basis of the literature survey, it can be said that there was no mention of *Surpala* as the Author of *Vrikshayurveda* till the 13th or 14th century. Otherwise, *Sharangdhar* would have mentioned it in his work. Although it is a coincidence that most of the *shlokas* in *Surpala s Vrikshayurveda* and *Sharangdhar s Upvanavinoda* are the same and in identical order^[2]. This signifies that origin of both this treatise is from another manuscript, which can be one or many. At the end of *Vrikshayurveda* treatise, he mentioned- "*it dharani-ruha-ayurvedam-udyat-pratap-prachar-narpati Shri Bheempalantarangah*," meaning he was subordinate of majestic king *Bheempala*. Dr. Nalini Sandhale says *Surpala* belonged to the 10th century. However, there is no sufficient evidence to support this. Determining the time period of *Surpala* and the origin of *Vrikshayurveda* is another topic that has a great scope for research.

Back to India

This treatise was not available in India. In the year 1994, Dr. Y. L. Nene, Chairman of The Asian Agri-History-Foundation in Secunderabad, India, was able to procure this rare manuscript from the Bodleian Library of Oxford University, London, UK. It was found written in the Devanagari script of a significantly earlier stage. Dr. Nalini Sadhale did the English translation of the manuscript, which was published in the year 1996 by the foundation as its first research bulletin along with its original script^[3]. It brought to light India's rich knowledge in the field of horticulture.

Subjects Covered

Vrikshayurveda offers a holistic approach to plant health and growth, focusing on methods to optimize plant vitality, improve crop yields, and prevent diseases through natural means. It encompasses a wide range of practices including *Mangalacharanam* (Salutation to Deities), *Taru Mahima* (Importance of trees), *Nivasa-Asanna Taru Shubh-Ashubh Laxana* (Auspicious and Inauspicious features of trees near home), *Vaatika Sthana* (Garden construction direction), *Bhumi Nirupana* (Types of soil or region for tree plantation), *Padapa Vivaksha* (Knowledge About trees), *Beejotpattividhi* (Seed germination procedure), *Ropana Vidhi* (Sowing procedure), *Taru Rakshana Niradesh* (Instructions for protection of trees), *Kunapa Jala* (Liquid organic manure), *Ropita Vrikshanam Sechana Vidhi* (Irrigation process), *Dhupana Vidhi* (Fumigation process), *Roga Gyana Evam Chikitsa* (Knowledge of plant diseases and their treatment), *Upavana Prakriya* (Art of garden construction), *Kupa Niradesh* (Instructions for making well), *Kupartha Bhumi Pareeksha* (Examining land for making well), *Annadi Nishpatti* (Suitable area for crop cultivation) and *Grantha Karta Parichaya* (Identity of Author)^[4].

Mangalacharanam (Salutation to deities) The Author starts the treatise by giving a salutation to *Lord Ganesh*. The importance of *Udyan/Vaatika* (gardens) is told as- 'Person possessing all the worldly pleasure is of no importance if he doesn't have beautiful gardens full of fragrant flowers and creepers to roam'.

Taru mahima (Importance of trees) Many illustrations explaining the significance of trees are given here, such as- "If a single tree is present on the path, it gives rest and happiness to many tired travellers"; "Plantation of five trees is greater than building ten palaces"; "Ten wells are equal to one pond, ten ponds are equal to one lake, ten lakes are equal to one son, ten sons should be considered equivalent to one tree"; Planting trees is one method among many to obtain *Purushartha Chatushtaya* (Four pursuits of life)- *Dharma* (Righteousness), *Artha* (Prosperity/Wealth), *Kaama* (Duty), *Moksha* (salvation), etc. importance of plants like *Tulasi*, *Bilwa*, *Aswatha*, *Dhatri*, *Vata*, *Nimba*, *Plaksha*, *Amra*, *Palash*, *Udumbar*, *Madhook*,

Kshirini, Dadima, Rambha, Priyala, Panas, Jambu, are mentioned separately. At last, he says planting all kinds of flowering and fruiting trees gives benefits equivalent to donating *Ratna Dhenu* (Cow adorned with various gemstones, gold, etc.).

Nivasa-Asanna Taru Shubh-Ashubh Laxana (Auspicious and Inauspicious attributes of trees near

residence) In this, the Author included which tree should be planted in which direction along with the plants which should be present near or inside the residential area.

Table 1: Directions to plant trees

Direction	Plant
East	<i>Nyagrodha</i>
West	<i>Peepal</i>
North	<i>Plaksha</i>
South	<i>Udumbara</i>

It is said that *Deva-Danav-Gandharva-Pishacha-Urag-Rakshas* (Celestial beings) and *Pashu-Pakshi* (Animals and birds) reside in trees. The shadow of any tree falling on a residence is considered bad. Plants with yellow/golden flowers should not be present at the entrance. *Badari, Kadali, Dadima, Beejapuraka, Eranda, Kanchnar, Aswatha, Sleshmantak, Arjun, Karanja, Neeli, Haridra* should not be planted inside the residential area. Wood from thorny and milky exudate-containing plants should be used for building homes as it leads to *Arthanasha* (Destruction of prosperity) and *Prajakshaya* (Reduction in offspring), respectively.

Vaatika Sthana (Garden construction direction)

Garden should never be established in the south, south-west, or north-east direction of the house as it leads to fights and misunderstandings. It is best to construct a garden in the west, north, and east direction of the home for the enhancement of wealth and prosperity.

Bhumi Nirupana (Examination of soil/region)

Region-wise, it is classified as *Jangala, Anupa, and Samanya*. Divided into six types on the basis of Color- *Asita, Pandu, Shyamala, Lohita, Shweta, Peeta*, and Taste- *Madhura, Amla, Lavana, Tikta, Katu, and Kashaya*, respectively. The soil consists of *Visha* (Poison), *Pashana* (Stones), *Valmika* (Anthills), *Bila* (Holes), *Dushta* (Impure), *Ushar* (saline), *Durodaka* (water is far), *Sharkarila* (excess gravels) is

considered not good for cultivation. The soil best for plantation should be like *Indraneela*, soft like a parrot's feather, white like a conch shell, lustrous like *Kund, Kumud*, or moon, look yellow, *Tapta Swarna* (hot gold) or like *Champak*; also, it should be even, having water, lots of greenery and covered with vegetation. The trees are suitable for *Anupa desha- Panas, Lakuch, Taali, Vamsa, Jambira, Jambu, Tilak, Vata, Kadamb, Amra, Kharjur, Kadali, Pooga, Tinisha, Mridwi, Ketaki, Naliken* etc. *Shobhanjana, Shriphala, Saptaparna, Shephalika, Shami, Karir, Karkandhu, Kesar, Nimba, Ashoka* etc. easily grows in *Jangala bhumi*. *Sadharana bhumi* allows the growth of *Beejapuraka, Punnaga, Champaka, Amra, Atimuktaka, Priyangu, and Dadima* with ease. Further, *Surpala* says that if a person has enough money, dedication, and a king's wish- then any plant can be grown at any place by providing a suitable environment.

Padapa Vivaksha (Knowledge about trees)

there are four kinds of trees told- *Vanaspati* (Without flowers gives fruit), *Druma* (Bears both flowers and fruits), *Lata* (Creeper), *Gulma* (Shrub) and for their plantation, three ways are mentioned- *Beeja* (Seed), *Kaanda* (Stem cutting), *Kanda* (Tuber). *Jambu, Champak, Punnaga, Nagakesar, Chinchini, Kapitha, Badari, Bilwa, Kumbhakari, Priyangu, Panas, Madhuka, Karmarda*, etc., are plants that arise from their seeds, while *Tambuli, Sinduvaar, Tagar* etc grow from their *Kaanda*. The plants which grow from their *Kand* are

Kakubha, Ardra, Rasona, Alookanda etc. *Ela, Padma, Utpala*, etc., can grow from their seeds and *Kand* both.

Beejotpatti Vidhi (Seed Germination Procedures)

Surpala has given various procedures to ensure faster germination of seeds. These methods include 'Treating the seeds by sprinkling milk and kept for drying for 5 days, later *Dhupana* should be done with *Vidanga* plus *Ghrit*'; 'Sprinkling the seeds with milk then applying *bhasma* of *Brihati*, *til* mixed with *ghrit*'; 'Rubbing the seeds in cow dung and soil, after some time give *Dhupana* with *Vasa*'; 'Sprinkle the seeds with milk, rub cow dung, honey, and *Vidanga*'; 'Soak the seed in milk, dry in the shade then sprinkle *Brihati, Kamala Nala, Til* on them. *Makanda, Jambu, and Panas* seeds, when treated by the above method, give good results. Pre-treatment of *Kshirini* and *Bakul* seeds by the above method, followed by nipping or folding the head of their seed, leads to quicker germination. *Ervaru* seeds should be sprinkled with jaggery mixed water, then given heat by fire for three days and taken out are suitable for sowing. The person who wants to sow seeds should first take a purificatory bath and adorn himself with clean clothes; then he should offer salutations and offerings to deities, teachers, and *Bhumidevi* (soil), followed by sowing seeds himself later with the help of other persons. Grass should be spread over the area where seeds are sown, then sprinkle that area with water mixed with milk. When the seeds are ready to germinate then, only water irrigation should be started. *Surpala* has also given some *Shubha Tithi- Nakshatra* (Auspicious dates and lunar mansion) suitable for plantation.

Ropana vidhi (Plantation/ Sowing procedure) it should be done in soil which is even and on which *Tila* cultivation was done previously. While planting trees, gaps of 14, 16, and 20 *hasta* should be maintained. If the trees are planted more than this distant, there is a fear of getting destroyed during storms; if less than this distance is maintained, then the trees won't bear any fruits. Before plantation, pits should be made ready, which should be one *hasta* in length, breadth, and height and filled with *gomaya, asthi*, etc., up to the brim. Later sprinkle *kunapajala* on it. Methods for sowing seeds of *Amra, Kadali, Kushmanda, Lambuka,*

Trapusa, Kesara, Maruvak, Damanaka, Kadali, Shashtika shali, etc. are told. Similarly, plantation by *kaanda* is told for trees *Shatpatrika, Dadima, Karveera, Kadalidal*, etc. Season-wise and design-wise, the plantation is also mentioned by *Surpala*. He has also given *Taru Raksha Nirdesh* (Instructions for protection of trees) from *Nihar* (Excess moisture), *Chand vata* (Storm), *Dhuma* (Excess smoke), *Aatap* (Excess sun), *Agni* (Fire), and *Keeta* (Insects).

Kunapa Jala (Liquid organic manure) author has given various procedures to prepare organic manure- "pigs faeces, bone marrow, brain, flesh, and blood mixed with water and kept"; "horse's bones, dead *Shuka*, the flesh of fishes, horns of goat and sheep, cow dung cakes mixed with water- kept for boiling, later stored in the unctuous utensil." This liquid manure is extremely nutritious for plant health.

Sechana vidhi (Irrigation methods) plants should be watered morning and evening daily for 15 days till the soil has a sufficient amount of water in the *Jangala* region. In *Anupa* desha, water should be given once in five days, while in *Sadharana* desha, ten days- morning and evening, water should be poured. According to season, in winter on alternate days, in spring- daily evening, and in summer thrice a day, plants should be watered. During the rainy and autumn season, juice of fruits, urine, fat, and milk mixed with water should be given to plants. Weeds and unnecessary plants should be removed from the surroundings at regular intervals.

Dhupana Vidhi (Fumigation process) various preparations of *Dhuma* are told by *Surpala* to prevent the plants from different diseases and for better production of flowers and fruits, like *Dhuma* of *Kadali Patra, Sarshapa* and *Safari* species of fish. *Vidangadi dhuma, dhuma* for use on *lata* (creepers), fruiting trees like *Amra, Narikela, Dadima, Panas, Bilwa, Kapitha, Kadali, Tinduka, Matulunga, Naranga, Madhuka and Sauveera*, Flowering plants are told. Different methods, such as fulfilling the desires of plants like *Ketaki, Bakula, Makanda, Ashoka, Kurbak, and Tilak* for obtaining plenty of blossoms, are said. The marriage of *lata* (Creepers) with the nearby tree is also told for getting beautiful flowers in *Shyamalata*. Protection of plants from fog can be done by wrapping them with

cloth and giving dhuma generated by fire. The harmful effects of hail on crops can be overcome by sprinkling steamed rice with curd on them. Finally, he also tells one *mantra* to ward off rodents, insects, etc., from the field.

Roga Gyana Evam Chikitsa (Knowledge of plant diseases and their treatment) the diseases in plants are of two types, i.e., *Antarika (Vata, Pitta, Kapha Doshadi janita)* and *Bahya (Keeta, Sheetadi janita)*. *Nidana* and *laxana* of diseases arising due to *vata*, *pitta*, and *kapha* are explained. He also gave other causes like *Krimi* (Insects), *Prachanda pavana* (Storms), *Vahni* (Fire), *Kutharaghata* (Wounded by axe etc.), *Pandu roga* (Anaemia), *Beeja dosha* (Vitiation of seeds), *Ati Sechana* (Excess irrigation), *Khaga nichaya nivasa* (Gathering and nesting of birds), *Vallitanopagala* (Climbing of epiphytes etc.), *Trina* (Presence of grass) etc. Later *Surpala* gave detailed treatment of all the above-mentioned *diseases* and *doshas*. Along with this, he also tells *chikitsa* for *Shushka taru*, *Mithya upachara*, and *Vandhya taru*.

Vichitra Adhyaya's (Bizarre/ Miracle treatments) special chapter tells many miraculous results from the procedures said here, such as plants producing flowering and fruiting for the full year, without season appearance of flowers, fruits, and fragrance in trees, creation of seedless fruits, alteration in taste of fruits, change in flower color, variation of flowers in a tree, modifying trees into creepers, making bonsai trees,

hybrid plants, possibility of long duration fruiting, instant production of fruits, transforming shape of fruits and flowers.

Upavana Prakriya (Art of garden construction) *Surpala* beautifully explained the method of making an ideal garden. He says that for preventing sunlight into the garden, creepers having dense leaves and flowers should be planted throughout. Construction of various reservoirs, one where swans swim all day and is surrounded by flower and bees; the other where no aquatic animal is present, surrounded by flowering plants such as lotus and lilies, and is exclusively used for the purpose of boating. One such pond should be present where the water is so pure that one can see crystal clear reflection of all plants nearby in the day period and is lit by moon light at the nighttime. *Kupa* (Well) having sufficient and sweet water should be built inside the garden so that all the plants can be easily irrigated. If the water is impure and has a bad odour and taste, then *Anjana*, *Musta*, *Khas*, *Rajakoshatak*, *Amalaka*, and *Katak* mixture can be put inside that water to make it free from impurities.

Kupartha Bhumi Pareeksha (Examining land for making well) Author has told many signs that indicate the presence of water below the soil, such as "If *vetasa* is present in a water-less area, then digging should be done at three hasta in west direction for a depth of *sardha purusha pramana* (180 *angula* measurement) to reach water" etc.

Table 2 Growth of plant/ animal based on the presence of the nearby tree.

Presence of tree	Plant/Animal suitable for growth
Vata, Saptaparna	<i>Yava</i>
Tinduka	<i>Shashtika</i>
Jambu	<i>Til, Masha</i>
Shirish	<i>Mudga</i>
Madhooka	<i>Godhuma</i>
Hastikarna	<i>Hasti</i>
Ashwakarna	<i>Ashwa</i>
Patala	<i>Go</i>
Kadali	<i>Aja, Avika</i>

Annadi Nishpatti (Suitable area for crop cultivation) by seeing the growth patterns of flowers and fruits in trees, one should be able to know what kind

of flora and fauna can be present there. He also says the presence of *Amra* indicates *Manushya Kshema* (Well-being), *Bhallataka* of *Bhaya* (fear), *Peelu* of *Arogya* (Disease free), *Khadir* of *Durbhiksha*, *Arjuna*

of Shobhana Vrishti, Nimba or Nagakesara of Subhiksha, Kapitha of Vata janya vikaras, Nichula of Vrishti bhaya and Kutaja of Vyadhi bhaya.

Grantha Karta Parichaya (Identity of Author) in the last sloka of the treatise, *Surpala* introduces himself, saying, "for the *ayu vridhi* (increasing lifespan) of plants present on earth, this treatise "vrikshayurveda" is written by *Surpala* who is erudite and skilful under the refuge of glorious king *Bheemapala*.

DISCUSSION

Vrikshayurveda is a special treatise dedicated entirely to the well-being of plants present on the planet. In times when a man is bent on deforestation, it tells them the importance of trees in an undeniable way. It offers valuable insights and practical techniques for plant health. In the era of excessive use of chemical fertilisers, pesticides, and insecticides which has a devastating effect on the environment and human-beings, it provides a perfect solution by giving techniques of organic agriculture. Along with telling the methods of treating the diseases occurring in plants, he also gives ways of beautifying the surroundings in the form of art for garden and lake construction. He suggested that plants also have desires by giving various ways to meet the same. Surpala gave a separate topic where he tells the benefits of doing marriage of plants by following the rituals same as that of humans. Later it was for Sir J.C. Bose to prove them as scientifically valid practices. The plants respond favourably to melodious music was validated by his experiments on plant responses [5]. Although there are a few lacunas present, such as a detailed description regarding Dhupana kriya done in seeds, exact measurements of dravyas and time period of procedures for seed pre-treatment- in Beejotpatti vidhi Adhyaya have not been mentioned. While explaining Vichitra Adhyaya, he tells many miraculous/ bizarre methods which do not appeal at

times; hence there is a need for research side by side on such topics. This valuable treasure was passed down by tradition with respect to plants, which was possible only by constant observation, experience, and practical skills.

CONCLUSION

Vrikshayurveda stands as a timeless wisdom that celebrates the intricate relationship between humans and plants. By integrating scientific knowledge with spiritual reverence, this ancient science provides valuable insights and practical guidelines for nurturing the health and vitality of plant life. As the world seeks sustainable alternatives to safeguard our planet's future, *Vrikshayurveda* offers a beacon of wisdom, reminding us to cultivate not only the earth but also our profound connection with nature. By integrating the knowledge of Vrikshayurveda into modern agricultural practices, we can encourage sustainable and eco-friendly techniques of plant cultivation.

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