

**VRIKSHAYURVEDA: A CLASSICAL INDIAN PLANT SCIENCE
SYSTEM AND ITS RELEVANCE TO SUSTAINABLE AGRICULTURE****Dr. Komal Jhakar*¹, Prof. (Dr.) Chandan Singh², Dr. Nikita Panwar³, Dr. Ravina Dudi⁴**¹PG Scholar, Department of Dravyaguna Vigyana, PGIA, DSRRAU, Jodhpur, Rajasthan.²HOD & Professor, Department of Dravyaguna Vigyana, PGIA, DSRRAU, Jodhpur,
Rajasthan.³Assistant Professor, Department of Dravyaguna Vigyana, PGIA, DSRRAU, Jodhpur,
Rajasthan.⁴PG Scholar, Department of Swasthavritta & Yoga, PGIA, DSRRAU, Jodhpur, Rajasthan.**Article Received: 17 April 2026, Article Revised: 07 May 2026, Published on: 27 May 2026*****Corresponding Author: Dr. Komal Jhakar**

PG Scholar, Department of Dravyaguna Vigyana, PGIA, DSRRAU, Jodhpur, Rajasthan.

DOI: <https://doi-org/101555/ijarp.6371>**ABSTRACT**

Vrikshayurveda is an ancient Indian system of plant science described in classical Sanskrit literature that focuses on horticulture, soil management, plant nutrition, irrigation practices, and natural plant protection methods. It reflects an early ecological understanding of agricultural systems, emphasizing harmony between soil, plants, climate, and biological processes. Classical texts such as *Surapala's Vrikshayurveda*, *Brihat Samhita*, *Arthashastra*, and *Upavana Vinoda* describe several sustainable agricultural techniques including organic fertilization, seed treatment, irrigation management, and herbal plant protection strategies.⁴⁻¹⁰ This study presents a structured narrative review of *Vrikshayurveda* and critically examines its relevance in the context of modern sustainable and regenerative agriculture. Classical texts along with contemporary scientific literature (2000–2025) were analyzed using qualitative thematic synthesis. Recent studies have highlighted the scientific relevance of formulations like *Kunapa Jala* and traditional ecological farming systems in improving soil fertility and plant growth.¹⁻³

The findings suggest that *Vrikshayurveda* includes several eco-friendly agricultural practices such as fermented organic fertilizers (e.g., *Kunapa Jala*), plant-based pest management strategies, soil classification systems, and climate-adaptive cultivation techniques. These

principles demonstrate conceptual similarities with modern agro-ecology, organic farming, and soil health management systems.¹⁻³

The study concludes that Vrikshayurveda represents a structured traditional ecological knowledge system that may contribute to sustainable agriculture, provided that its practices are validated through systematic scientific experimentation and field-based research.

KEYWORDS: *Vrikshayurveda*, Sustainable Agriculture, *Kunapa Jala*, Agro-ecology, Organic Farming, Traditional Knowledge Systems

1. INTRODUCTION

Traditional Indian knowledge systems, particularly *Ayurveda*, extend beyond human health to include ecological balance as a core principle. Within this holistic framework, plant life is considered an essential component of environmental stability and human survival. Ancient Indian scholars documented agricultural observations related to soil fertility, climatic conditions, irrigation systems, and plant health in several classical Sanskrit texts.⁴⁻¹⁰

India possesses a long-standing agricultural heritage shaped by continuous observation of environmental conditions such as soil characteristics, rainfall patterns, seasonal variations, and plant–ecosystem interactions. These observations contributed to the development of structured agronomic knowledge in ancient India.

Among these traditions, *Vrikshayurveda* is recognized as a specialized discipline dedicated to plant science, horticulture, and sustainable cultivation practices. It integrates ecological principles with practical agricultural techniques aimed at enhancing soil fertility, plant vitality, and environmental sustainability. Contemporary studies have explored the scientific relevance of these traditional methods in the context of sustainable agriculture and organic farming systems.¹⁻³

2. OBJECTIVE

The objective of this study is to systematically review classical Vrikshayurveda literature and evaluate its scientific relevance and applicability to contemporary sustainable agriculture practices.

3. MATERIALS AND METHODS

3.1 Study Design

This study adopts a qualitative narrative review approach integrating classical Sanskrit agricultural texts with modern scientific literature on organic and sustainable farming.

3.2 Data Sources

The analysis is based on:

Classical Literature

- *Surapala's Vrikshayurveda*⁴
- *Salihotra's Vrikshayurveda*⁶
- *Brihat Samhita*⁵
- *Arthashastra*⁸
- *Krishi Sukti*⁹
- *Upavana Vinoda*⁷
- *Agni Purana*¹⁰

Modern Scientific Sources

- Google Scholar indexed publications
- PubMed research articles on organic agriculture
- AYUSH journals and agronomy reviews
- Peer-reviewed studies (2000–2025)¹⁻³

3.3 Search Strategy

A structured keyword-based search was performed using combinations such as:

- *Vrikshayurveda* plant science
- ancient Indian agriculture systems
- *Kunapa Jala* biofertilizer
- *Ayurvedic* farming practices
- traditional organic agriculture India

Boolean operators (AND/OR) were used to refine results.

3.4 Inclusion Criteria

- Studies related to *Vrikshayurveda* or *Ayurvedic* agriculture
- Research on soil science, plant nutrition, or ecological farming
- Comparative studies on traditional and modern sustainable agriculture

3.5 Exclusion Criteria

- Studies unrelated to agriculture
- Non-relevant ethno-botanical literature
- Duplicate or non-authenticated publications

3.6 Data Analysis

A thematic qualitative analysis was conducted to:

- Identify core agricultural principles

- Compare traditional and modern systems
- Evaluate ecological and scientific relevance
- Interpret applicability in modern agriculture

4. RESULTS AND DISCUSSION

4.1 Conceptual Framework

Vrikshayurveda conceptualizes plant growth as a dynamic interaction between soil, water, air, climate, and biological factors, forming an integrated ecological system.⁴⁻⁷

4.2 Soil Classification System

Soil Type	Characteristics
<i>Anupa Desha</i>	Moist, nutrient-rich, biologically active soil
<i>Jangala Desha</i>	Dry, sandy, low fertility soil
<i>Sadharana Desha</i>	Moderately fertile, balanced ecological condition

The soil classification described in classical texts demonstrates similarities with modern pedological and agro-climatic classification systems.⁴⁻⁶

4.3 *Kunapa Jala*: Traditional Biofertilizer

Kunapa Jala is a fermented organic formulation prepared from plant and animal-derived materials such as legumes, oilseeds, milk, and decomposed organic matter.⁴

Preparation Process

Organic inputs → thermal processing → filtration → anaerobic fermentation (10–14 days) → bioactive liquid formation → soil application

This preparation enhances microbial activity, improves soil fertility, and supports plant growth through nutrient enrichment. Modern studies have reported that fermented organic formulations improve microbial biomass and nutrient availability in soil.¹⁻³

4.4 Plant Health and Dosha-Based Interpretation

Dosha Type	Observed Plant Symptoms	Traditional Management
<i>Vata</i>	Dryness, weak structure	Oil-based applications, neem smoke
<i>Pitta</i>	Yellowing, heat stress	Cooling herbal extracts
<i>Kapha</i>	Fungal growth, excessive foliage	Ash-based herbal treatments

These interpretations resemble modern concepts of plant stress physiology and integrated plant health management systems.¹⁻³

4.5 Additional Agricultural Practices

Classical *Vrikshayurveda* literature also describes:⁴⁻⁷

- Regulation of flowering using natural plant-based formulations (sesame cake, jaggery, herbal extracts)
- Enhancement of fruit development through medicinal plant extracts
- Weed suppression using *Calotropis (Arka)*-based residues
- Water purification using *Amla*, *Kataka* seeds, and *Musta* powders

5. SCIENTIFIC INTERPRETATION

Several concepts of *Vrikshayurveda* show strong conceptual alignment with modern agricultural science:

- Fermented formulations correspond to microbial biofertilizer systems¹⁻³
- *Dosha*-based plant conditions resemble plant stress physiology concepts
- Soil classification parallels modern pedological classification
- Seasonal cultivation practices align with climate-resilient agriculture strategies

These similarities suggest that ancient agricultural systems were based on long-term empirical ecological observations.

6. LIMITATIONS

- Lack of controlled experimental validation
- Absence of standardized formulations and dosage protocols
- Predominantly qualitative and descriptive in nature
- Limited field-based scientific verification

7. CONTEMPORARY SIGNIFICANCE

Vrikshayurveda holds potential relevance for:

- Organic and regenerative agriculture systems
- Sustainable soil fertility management
- Eco-friendly pest control strategies
- Climate-resilient agricultural practices
- Reduction of synthetic fertilizer dependency

Recent scientific interest in organic farming and agro-ecological systems has renewed attention toward traditional agricultural knowledge systems such as *Vrikshayurveda*.¹⁻³

8. CONCLUSION

Vrikshayurveda represents a systematic traditional agricultural knowledge framework that integrates ecological principles with plant science and sustainable cultivation practices. Its conceptual foundations closely align with modern agro-ecology and organic farming systems. However, its practical application requires rigorous scientific validation, experimental trials, and standardization to integrate it effectively into contemporary agriculture.

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