

Review Article

<https://doi.org/10.20546/ijcmas.2025.1410.024>

Jivaamrit: Harnessing Wisdom of Vrukshaayurveda in Present Era

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ABSTRACT

Keywords

Jivaamrit, Agriculture, Vrukshaayurveda, Tridosha, Cow dung, Cow urine.

Article Info

Received:

15 August 2025

Accepted:

28 September 2025

Available Online:

10 October 2025

Agriculture is the backbone of India as it plays unparalleled role in economy as well as culture, playing an important role as livelihood for millions of families, the practice of plantation and crop management has been around since the time of Indus valley civilisation, so are plant diseases, various techniques using indigenous raw materials to prevent pests and promote plant growth has been documented in famous ayurvedic text like Vrukshaayurveda. The theory of Tridoshas has been given and action of various natural products on these doshas results in overall effect health of the plant. Jivaamrit is one of the most popular natural fertilizers, made out of products like cow dung, cow urine, jaggery and virgin soil, these products and their properties are well defined in ayurvedic texts and their effect on the three doshas, hence Jivaamrit carries the properties to balance these doshas in tree, provide desired amount of nutrition and prevent them from various pests and diseases. The present review emphasise on the effect of ayurvedic properties cow dung manure on the plant development.

Introduction

It is well known that India is an agriculture-based country and the Indian traditional agricultural practices involves many indigenous products for crop cultivation, one such product is Jivaamrit. It is an excellent blend of indigenous products readily available to farmers. Jivaamrit was coined by Dr. Subhash Palekar, an expert on natural farming [1]. He has emphasized on the

traditional practices which our ancestors used. The composition of Jivaamrit includes- cow dung, cow urine, gram flour, jaggery and soil [2]. It is well known that cow has always been an important part of our Indian culture, and our ancestors were well aware about the potential uses of cow products. Ayurveda- the science of life, is one of the oldest holistic healing systems of the world over 5,000 years ago, what makes Ayurveda a whole science is the fact that it is not limited to humans,

it also has an entire section dedicated to the study of plants, from soil selection to treatment in case of pest infection [3]. This sacred science is called as “Vruksha Ayurveda”. The term Vruksha Ayurveda is comprised of two terms “Vruksha” meaning trees and “Ayurveda” meaning science of life, which makes it branch of science related to the life cycle of plants. The proper documentation of Vruksha Ayurveda and its principle can be, seen in the treatise by Surapala called “Vruksha Ayurveda” itself, written around 1000 A.D. [4].

The theory of tridoshas

In Chapter named “*taruchikitsa*” which is compilation of various treatment methods of diseased crops, tridoshas theory is given in verse 175, [5]. नराणामिव वृक्षाणां वातपित्तकफाग्ददाः। सभवंन्ति निरुप्यातः कुर्यात्तद्दोषनाशनम्॥१७५॥

The tridoshas theory states that, trees just like men, get disease due to disturbance in the three basic humours namely; vata, pitta and kapha. These doshas when get disturbed and produce pathology in plant, which should be diagnosed by observing the symptoms. Furthermore, the ancient text also gives an elaborated characteristic of the each dosha being increased than normal level.

Coming to the present era, many plant diseases resemble these doshaja imbalance, hence the theory of tridoshas can be correlated to nutrient imbalances in plants, ultimately making the plants more susceptible to diseases. The main reason behind the nutrient imbalance in soil is excessive and prolonged use of chemical fertilizers, as the chemicals often destruct the natural microbiota of the soil. Overuse of chemical fertilisers often cause soil erosion and reduces the fertility of the soil [6]. Along with this the use of chemical fertilizer also leads to water pollution affecting the aquatic life forms [7]. In the more recent years, it has also been discovered that the chemical fertilizers contain some seriously alarming substances which puts humans on risk of various ailments like cancer, not only it affects the health of people but it also puts a farmer through economic crisis, long use of chemical fertilizers decrease the yield causing loss to the farmers [8].

To overcome these rising issues, Dr. Subhash Palekar came up with the concept of Zero budget natural farming (ZBNF), which is cost effective and sustainable. ZBNF includes various formulation like Jiwaamrit, beejamrit,

panchagavya etc. These formulations are prepared from natural resources like cow dung, cow urine etc [9]. Jiwaamrit is one among the most potent natural fertilizer which promotes the plant growth and increases seed germination.

While a lot of research is going on to understand the effect of Jiwaamrit and its bio-chemical and microbial properties in contemporary sciences, it cannot be denied that use of natural resources like cow dung and cow urine as manure has been a long-standing practice in India, hence it is important to understand the probable mechanism of action of Jiwaamrit through the lens of Vruksha Ayurveda. [10, 11].

Theory of tridoshas holds true to plants same as humans, which shows that our ancestors were very much aware that trees are also a living form, this is of course is another discussion, focusing on the current topic that is justification of action of natural fertilizer Jiwaamrit on basis of ayurvedic principles. The components of Jiwaamrit have properties which balances the doshas [5].

Properties of each constituent of Jiwaamrit as per Ayurvedic and Modern science

Cow dung (Go-maya)

Ayurvedic view

In the very oldest Indian literature - Vedas, it is indicated to smear the cowdung paste called gomeya in Sanskrit over the walls and floor, to be used as natural purifier [12]. In other ancient literatures cow dung is encouraged to be used as natural fertilizer. Old practices include burning of dried cowdung at evening indicating anti insect properties [13]. Famous formulation “panchagavya” has given in many ayurvedic texts, it is mentioned in Astanghridyam, Charak Samhita and Bhaishijya ratnawali [13, 14].

Modern view

The cow dung contains approximately 80% water which gives medium to hundreds of beneficial microbes found in it. Cow dung contains mineral like potassium, nitrogen in higher quantity and sulphur, calcium, magnesium, manganese, cobalt etc in lesser. Cow dung has shown properties like anti-septic, anti-fungal, anti-viral, and anti-insect [15].

Cow urine (Go-mutra)

Ayurvedic view

The second major ingredient is cow urine, the properties of cow urine as per Ayurveda includes doshaghna, krumighna, katu, tiksna, tikta, lavana in anurasa and vata-kaphahara. Here, the doshaghna properties promote resistance in plants towards pathogens, krumighna properties protects the plants from pest infestation. Acharya Charaka has given many properties of cow urine in his famous treatise “Charak Samhita” including its taste as Madhur (sweet) and tridoshahara (decreases all three doshas), highlighting it as insecticide. Father of surgery, [16]. Acharya Sushrut has called cow urine pungent, sharp, hot, light, and alkaline and its action as vata kaphahara [17]. Astang sangraha mentioned properties like hot, pungent and said that cow urine helps in absorption of materials across cells. In Bhavaprakash, cow urine has been given as Visaghna (anti-toxin) and Rasayan (rejuvenative) [18].

Modern view

The contents of cow urine: Water – 95%, Urea – 2.5%, Minerals, Salts, Hormones, Enzymes -2.5%. Cow urine mainly has anti-microbial properties, along with sodium, nitrogen, sulphur, Vitamin A, B, C, D, E, minerals, manganese, iron, silicon, chlorine, magnesium, citric, succinic, calcium salts, phosphate, lactose, carbolic acid, enzymes, creatinine and hormones [19]. Cow urine is also a bioenhancer, which is called Rasayan in ayurvedic texts, which is responsible for its activity as immunomodulator. Cow urine distillate has been granted U.S. patent for its properties as anti-fungal, antibiotic, anti-cancer [20]. Cow urine is an excellent bio-fungicidal, various studies shows its fungicidal effects against many microbes responsible for crop diseases like *C. tropicalis*, *Aspergillus Malassezia*, and *C. glabrata*. Significance of some constituent with respect to agricultural utility [21].

Jaggery (Guda)

Ayurvedic view

Guda has been described in ancient literatures like Vedas. Classical ayurvedic texts have also mentioned guda and its wide properties and applications [22]. In ayurvedic texts, the properties of guda are Pushti

karaka(nourishing), guru(heavy), snigdha(smooth), saksharao(alkaline), na-atipittaharo (does not aggravate pitta dosha), kapha-krimi, balaprada(increases kapha, and promotes worms and nourishes) [23]. Hence, guda helps to promote earthworm in soil and provides nourishment to the beneficial microbial growth for crops [24, 25].

Modern view

Jaggery is an unrefined, natural sugar produced from sugarcane juice by evaporating it over the steel or iron pan over the furnace. Jaggery contains proteins, minerals, and vitamins that are necessary for growth [26]. It is potent source of iron and has high iron and copper content than other sweetening agent like refined sugar [27].

Normally jaggery contains approximately 70% sucrose, below 10% of glucose and fructose, less than 5% of minerals and 3% moisture. Due to these properties, jaggery promotes increases water holding capacities, provides nutrient in the form of sugar for the microbes hence, increase the microorganism count and boost plant growth [28].

Gram flour (Besan)

Ayurvedic view

In we Ayurvedic text, dravyaguna vijyana, the properties of chana dal (gram flour) are given as the cold (high water holding capacity), and increases vata dosha, and reduces kapha and pitta dosha respectively [22, 23].

Modern view

According to modern science, composition of gram flour is approximately 11.2% moisture, 22.5% protein, 5.2% fat, and 58.9% carbohydrate, which provides nutrition to microbes in soil [29, 30].

Handful of healthy soil (Sadharan Bhumi)

Ayurvedic view

According to Ayurveda healthy soil is the one which is grey or black in colour, it should not be too moist or too dry, it shouldn't have large rock particles or sand. The land must sustain living beings like trees. In addition to these characteristics Acharya charaka has said that all

three doshas are present in balanced state, hence they balance the doshas in nature of inhabitants [31].

Modern view

The bio inoculant found in healthy soil is abundant in nitrogen fixers, phosphate solubilizing bacteria, NPK, and other helpful microorganisms. These microbes are naturally present and have a long shelf life in organic preparations [32, 33].

Mechanism of Jiwaamrit as per Vruksha ayurveda's principle of tridoshas

Vruksha ayurveda is a branch of Ayurveda which is not widely recognised, but it is well documented in ancient texts, the most famous and recent out of all is by Surapala written around 1000 A.D, in his text named Vruksha Ayurveda he has given various principles regarding care, and treatment of plants.

The relation between doshas and rasa (properties) has been explained in Vruksha ayurveda, in कटुतिक्तकषायरसैः पवनः पित्तं कटुष्णलवणामल्/स्निग्धमधुरामल्वणैः श्लेष्मा कोपं प्रयाति तरोः॥१८०॥[34].

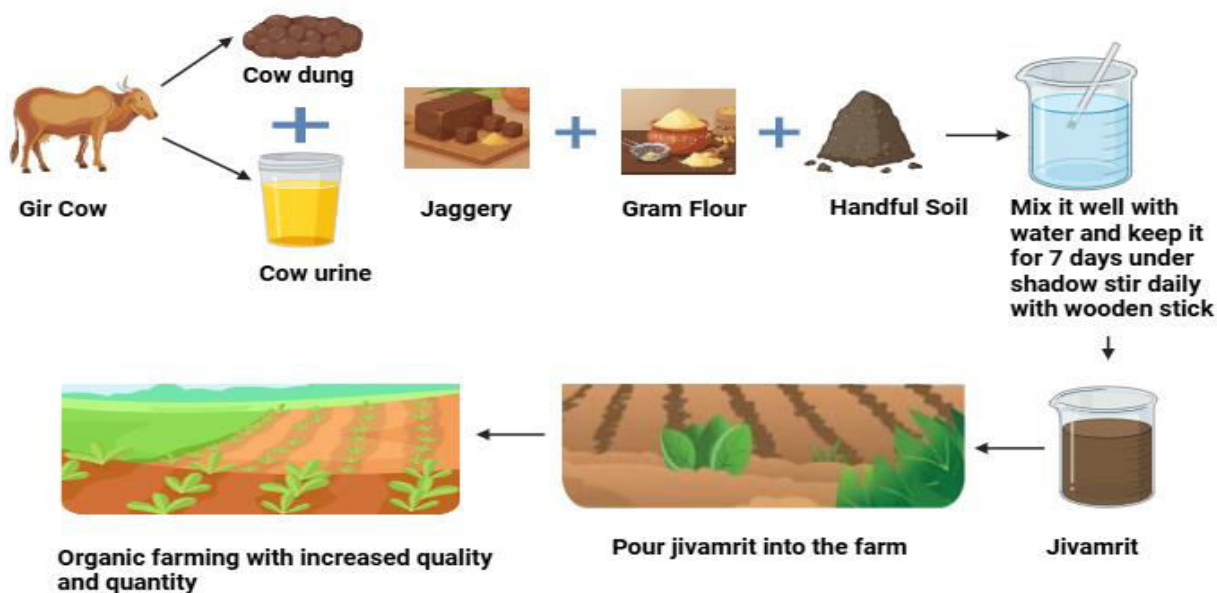
Now the contents of Jiwaamrit contains properties which helps to balance out these tridoshas, as cow dung has

property of being *jantughna* which means cow dung acts as pesticide, another cow product in Jiwaamrit is cow urine. In Ayurveda the properties of cow urine are given as Katu, Tikshna, and Kshara, Katu rasa reduces kapha dosha, Tikshna rasa reduces pitta and kapha dosha and kshara being alkaline in nature balances the pH of the soil. Jaggery, known as guda in ayurveda being guru in nature improves the water holding capacity of the soil, guda is called *vrushya*, meaning it is a very good source of nutrients, one of the specific properties of guda is “*krumikara*” which means “promotes worm count” it is well known that worms improve the soil fertility and increases the organic matter of the soil and it also reduces pitta dosha.

Gram flour is another constituent which balances all three doshas as per ayurvedic texts.

The last constituent of Jiwaamrit is handful of soil, which can be correlated to Sadharan Bhumi, which balances all three doshas in the plants grown in it. Hence, by considering all the properties of various raw materials used to prepare Jiwaamrit it can be said that the action of Jiwaamrit is by focusing on balancing the doshas within the plant and additionally preventing the plant from various pests, along with providing nutrition for its optimum development.

Fig.1 Diagrammatic representation of the Jiwaamrit preparation and its application in filed.



The present study underscores the urgent need to revisit the wisdom of *Vruksha Ayurveda* in the present era of

chemical-intensive farming. The classical theory of *tridoshas* Vata, Pitta, and Kapha when applied to plant

health, provides a holistic framework to understand soil vitality, plant physiology, and ecological balance. Surapala's treatise emphasizes harmony between natural elements, which resonates strongly with modern concerns regarding the adverse impacts of synthetic agricultural inputs. Farmers today face multiple challenges, including health hazards from chemical exposure, the economic burden of costly fertilizers and pesticides, and progressive soil degradation due to long-term dependency on synthetic inputs. These issues ultimately lead to declining yields, loss of soil fertility, and long-term financial losses, creating an urgent demand for sustainable alternatives.

Indigenous agricultural knowledge offers effective solutions to such problems by restoring ecological balance and reducing input costs. Among these practices, the use of *Jivaamrit* represents a practical and scientifically relevant approach. *Jivaamrit*, a fermented mixture of cow dung, cow urine, jaggery, gram flour, and a handful of fertile soil, serves as a potent biofertilizer and plant growth promoter. Each component contributes uniquely: cow dung acts as a microbial inoculum containing nitrogen-fixing and phosphate-solubilizing bacteria; cow urine provides essential nutrients and antimicrobial activity; jaggery supplies carbon for microbial proliferation; gram flour serves as a nitrogen-rich substrate; and healthy soil introduces native microbial diversity. Together, these ingredients create a living preparation that enhances soil microbial activity, improves nutrient cycling, and strengthens plant defense mechanisms.

From the perspective of *Vruksha Ayurveda*, *Jivaamrit* restores the balance of the *tridoshas* at the plant-soil interface, thereby ensuring holistic plant health. From a modern scientific standpoint, it enhances soil organic matter, increases microbial biomass, improves nutrient bioavailability, and supports resilience against biotic and abiotic stresses. In addition to its ecological advantages, *Jivaamrit* is cost-effective and easy to prepare, making it accessible for farmers even with limited resources. Its adoption also promotes cattle rearing as a supplementary livelihood, thereby linking agricultural sustainability with rural socio-economic development. While the benefits of *Jivaamrit* are increasingly recognized, further scientific validation is essential to enhance its acceptance and scalability. Future research should focus on standardizing preparation methods, quantifying microbial dynamics, and comparing its efficacy with conventional fertilizers and biofertilizers. Advanced studies employing

metagenomics and metabolomics can provide deeper insights into the impact of *Jivaamrit* on soil microbial communities and plant physiology. Long-term field trials can help establish its role in improving soil fertility, carbon sequestration, and crop yields under diverse agro-climatic conditions.

In conclusion, the integration of traditional wisdom with modern scientific approaches offers a promising pathway toward sustainable agriculture. *Jivaamrit* exemplifies how indigenous knowledge can be scientifically reinterpreted to address current agricultural challenges. By bridging ancient insights with contemporary research, this practice not only provides ecological and economic benefits but also strengthens cultural heritage and farmer empowerment. Such integrative approaches are urgently needed to ensure food security, environmental sustainability, and the well-being of farming communities in the 21st century.

Acknowledgement

This work was supported by GSBTM, grant number: GSBTM/JD (R&D)/661/2022-23/00172644 dated 06.02.2023 for providing the funding for research project on natural farming.

Conflict of Interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

Author ContributionS

Ashish Warghane: Conceptualization, Writing - Review & Editing, Supervision; Gayatary Bhardwaj: Original Draft Preparation, Writing Investigation, Resources; Sneha Patel: Writing, Investigation, Resources, Data Curation; Jigisha Thakkar: Preparation, Writing, Investigation, Resources, Data Curation; Harsh Patel: Resources, Investigation; Vaibhav Bhatt: Review & Editing, Validation, Formal Analysis, Investigation, Resources; B.A. Chopade: Supervision, Review & Editing

Declarations

Ethical Approval Not applicable.

Consent to Participate Not applicable.

Consent to Publish Not applicable.

Conflict of Interest The authors declare no competing interests.

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How to cite this article:

Ashish Warghane, Gayatary Bhardwaj, Sneha Patel, Jigisha Thakkar, Harsh Patel, Vaibhav Bhatt and Chopade B. A. 2025. Jivaamrit: Harnessing Wisdom of Vrukshaayurveda in Present Era. *Int.J.Curr.Microbiol.App.Sci*. 14(10): 239-245. doi: <https://doi.org/10.20546/ijcmas.2025.1410.024>