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Semantic Study of Sanskrit Names of Fifteen Indian Medicinal Plants

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Abstract

The purpose of the study is to analyze the semantic motivation of Sanskrit names of Indian Medicinal Plants therefore it is essential to known true literary meanings of names and their indication about pharmacological and medicinal uses of plants. Ancient herbalist and Ayurveda practitioners have studied the medicinal properties of plants and accumulated information about their uses through the process of long term cognitive and transformative activities. As a result vast amount of information about ancient uses of plants is available in Ayurveda. Keeping these views in mind semantic study of Sanskrit names of 15 Indian medicinal plants have been undertaken to find out rationale behind these names and decipher their hidden meanings.

Keywords: Semantic Study, Rationale, Sanskrit Names, Indian Medicinal Plants, Pharmacology

Riassunto

Lo scopo dello studio è quello di analizzare la motivazione semantica dei nomi sanscriti delle piante medicinali indiane: è essenziale conoscere i significati letterari dei nomi e le loro indicazioni sugli usi farmacologici e medicinali delle piante. Gli antichi erboristi e i praticanti dell'Ayurveda hanno studiato le proprietà medicinali delle piante e hanno accumulato informazioni sui loro usi attraverso un processo di attività cognitiva e trasformativa a lungo termine. Di conseguenza, in Ayurveda è disponibile una grande quantità di informazioni sugli antichi usi delle piante. Tenendo conto di questi punti di vista, è stato intrapreso uno studio semantico dei nomi sanscriti di 15 piante medicinali indiane per scoprire la logica alla base di questi nomi e decifrarne i significati nascosti.

Keywords: Studio semantico, fondamento logico, nomi sanscriti, piante medicinali indiane, farmacologia

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Introduction

Sanskrit is the most ancient language of the world, dated back about 5000 years ago. The Indian seers, sages and Ayurveda practitioners had given specific names to plants on the basis of their pharmacological activity and medicinal uses. They were logical and visionaries in naming the plants. Plants species has significant role in the people's life since ancient times, and the Sanskrit names of plants reflect the cognitive activities of ancient people. Etymological research has been carried out by various researchers to find out the meaning of common names of plants in different languages: Albanian (Saraci & Damo, 2021); Greek (Dawkins, 1936); English (Prosyannikova, 2020); Kaytetype (Turpin, 2013); Kanekes (Hidayati et al., 2022); Australian (Evans, 1997). These researchers have focused on plant names because they represent a condensed form of traditional knowledge. In India, the medicinal activity of many plants was described in Sanskrit language (Sensarma, 1992) as recently reported by Tiwari & Ittadwar (2023). Thomas et al. (2020) emphasized that an interdisciplinary approach is needed to solve controversial identity of medicinal plants because multiple names were assigned to particular plant species in Sanskrit language. A preliminary literature review has revealed that there are no reports on the evaluation of the rationality and validity of Sanskrit plant names. The present study provides first important indications about the semantic motivational features of the names expressing the medicinal properties of some of the most representative Indian medicinal plants.

Methodology

The Sanskrit names have been sorted out from the revised version of *Nighantu -Encyclopedia of Indian Medicinal Plants Used in Ayurveda* (Kamat (2002), Leucas (2017) and websites, as *www.bsienivs.nic.in*, www.envis.frlht.*org.*, www.wisdomlib.org. The web page of Botanical Survey of India, Government of India www.efloraofindia.com, has been referred to verify latest botanical nomenclature of plant species. The contextual and true meanings of Sankrit names were checked from online dictionaries www.deal.uchicago.edu, www.sanskritdictionary.org, *www.kosha.sanskrit.today/words/sa,* and manual dictionaries by Apte (1993, 1997).

The methodology of splitting the words (*Sandhivigraha*) is adopted to know true meanings of words because every single word in Sanskrit is referred as root (*Dhatu*), which is also a name for any constituent elementary substance. It is observed that Sanskrit names consist of various components viz., noun, verb, adjective etc. The meaning of Sanskrit names is supplemented with phytochemical and pharmacological data which can be used as evidence to justify their validity.

Results

Artemisia vulgaris L. (Asteraceae): It is named as "*Damanka",* that means control or oppression. The name implies an indirect reference to the property of the plant, which signifies that it is used to control so many diseases. The biological activities viz., gastrointestinal disorders, gynecological

diseases, antifungal anti-bacterial, antioxidant, antispasmolytic, estrogenic, cytotoxic, hepatoprotective, antimalarial, anti-inflammatory, antitumor, immunomodulatory etc. activities are attributed to the presence of flavonoids, sesquiterpene lactones and coumarins (Abiri et al., 2018, Ekiert et al., 2020).

Averrhoa carambola L. (Oxalidaceae): It is named as *"Brihadamla"*, *Brihad* meaning large and *Amla* meaning acidity. Its use against acidity is supported by its gastric antiulcerogenic activity in rats reported by Goncalves et al. (2006). Fruits contain acidic crystals of potassium oxalate. Another name of plant is *Rujakaram,* meaning sickness or disease. Its hidden meaning reflect that it is used to cure so many diseases which is attributed to antibacterial, anti-inflammatory, antipyretic etc. activities (Luan et al., 2021).

Chrysopogon zizanioides (L.) Roberty (Poaceae): one of Sanskrit names assigned to the plant is **"***Udicyam"*, meaning perfume. The property of fragrance is attributed to its roots, which yielded essential oil known as *Khas*. Chou et al. (2012) have reported the chemical composition of perfume oil. Another name is *Sheetmoola*, that consists of two words, *Sheet* meaning cool and *Moola* meaning roots. The meaning implies that roots have cooling effects on the body, which is correlated with its use in preparation of *Khas* sherbet or cold drinks. The name *Abhaya*, also used for this species, consists of a single component meaning that it can be used to cure many diseases.

Cinnamomum tamala (Buch.-Ham.) T.Nees & C.H.Eberm. (Lauraceae): the name **"***Chandanam"*, that means cool, is substantiated by antipyretic activity (Thamizhselvam et al., 2012). Other names are *"Gandhipatrika", Gandhi* meaning fragrance and *Patri* meaning leaves, and *"Surabhigandha", Surabhi* meaning sweet and *Gandha* meaning fragrance. The fragrance is due to presence of 53 aromatic compounds in plant (Wang et al., 2020). The plant is also named "R*ukshakam"* meaning reduces fats from the body. This property is corroborated with its hypolipidemic activity reported by Kumar et al. (2012). Finally, the name *Vasana* means the impression of anything remaining in the unconscious mind that leads to the feeling of sadness or happiness. This property could be correlated with its neurobiological effects (Upadhyay et al. 2016).

Curcuma longa L. (Zingiberaceae): This plant is known as turmeric, and it has been used as an ancient skin care cosmetic and drug plant of India with myriad of health benefits. The rhizome bright yellow powder is used for food coloring, condiment, spice and flavoring agent. Three names are assigned to the plants - *"Nisakaya", Nisa* meaning glowing and *Kaya* skin; *"Yositpriya", Yosit* meaning young woman; *Priya* meaning dear or beloved; *"Varavarnini", Vara* meaning turmeric; *Varini* meaning beautiful. These names implies that it is used as a skin care cosmetic. Another Sanskrit name used for this species is *Krimighni* consist of single component, related to its vermifuge activity which is supported with its anthelmintic activity (Ullah, 2013). The name "*Visaghni"* means that it is used to remove poison from body. This use is attributed to its anti-toxic activity (Khisamova & Gizinger, 2020). The name *"Varnavilasini",* Varna meaning Class or group of people; Vilasini meaning lustful woman. It literary indicates a class or group of lustful coquettish women. The name indicates that plant may be used as an aphrodisiac or antifertility drug. This

information needs to be verified by further investigations. The pharmacology of active compound Curcumin reported by Jain et al. (2007), Hewling & Kalman (2017) and Fuloria et al. (2022) rationalises its versatile use as a cosmetic and medicinal plant.

Fagonia cretica L. (Zygophyllaceae): The name is "*Kasaya*" and refers to the dose and method of preparation. It means that one part medicine plus four, eight- or sixteen-part water is used for boiling till we get ¼ th decoction. The use of decoction is corroborated with its medicinal properties viz., astringent, anti-inflammatory, laxative, anti-hemorrhagic, carminative etc. activities (Qureshi et al., 2015).

Gymnema sylvestre (Retz.) R.Br. ex Sm. (Asclepiadaceae): Two names are assigned to species are *"Bahalchakshu", Bahal* meaning thick and swollen; *Chakshu* meaning eyes. It means that it is used to cure sore and swollen eye. It is correlated with its antibacterial and anti-inflammatory activities (Satdive et al., 2003; Malik et al., 2008), because eye diseases could be due to bacterial infections. Another name is "*Madhunasini", Madhu* means sugar; *Nasini* means destroyer. This name points to its anti-diabetic activity which is corroborated with clinical application of plant against Type-2 diabetes mellitus and its associated pathologies (Yadav et al., 2019; Laha & Paul, 2019).

Hemidesmus indicus (L.) R. Br. (Apocynaceae): The name *"Anantamool"*, is derived from *Ananat* meaning infinite; *Mool* meaning roots. The meaning indirectly implies that roots are used to cure so many diseases. This observation is supported by reports of its hepatoprotective, anticancer, antidiabetic, antiulcer, neuroprotective, antioxidant, cardio protective, anti-inflammatory, antimicrobial etc. activities. Roots yielded aromatic aldehydes and their derivatives, phenolics, triterpenoids and so many other bioactive compounds (Nandy et al., 2020). Another name "*Candana"* indicates its cooling property, that needs to be confirmed by further investigation.

Indigofera tinctoria Chapm. (Fabaceae): This plant yields Blue Indigo Dye, and is identified by the name "*Tuttha"*, meaning collyrium. The meaning of name implies that it cures infection of eyes. This use is attributed to its antimicrobial, cytotoxic and anticancer activities (Renukakumari et al., 2011; Vijayan et al., 2016. Another name "*Vishodhini*" means laxative, which is supported by its laxative activity reported by Gerometta et al. (2020).

Jatropha glandulifera Roxb. (Euphorbiaceae): This plant is extremely poisonous. The name *"Dravanti"* means purgative properties, confirmed by Sabandar et al. (2013). Another name "*Musakahavya"*, from *Musakah*, which means swelling of the testicles, and *Havya*, which means offering. The name signifies that the species is used to reduce swelling and pain of testicles. This activity has been attributed to the anti-inflammatory activity of 3,3,dimethyacrylshikonin, and acetylshikonin (Ballantine, 1969).

Justicia adhatoda L. (Acanthaceae): The name of plant is **"***Bhishajmata", Bhishaj* meaning medicine and *Mata* meaning mother, which indirectly means that it is a powerful drug plant. This property of plant is correlated with quinazoline alkaloids, vaccine, vasicinone, vasicinol, vasicinine, vasicoline showing lot of pharmacological activities (Khursheed et al., 2010; Singh et al. 2011). Other two Sanskrit names are "*Vasa"* and "*Vasaka"*. The meaning of these names indicates that the plant reduces

the fats of the body, as confirmed by its anti-hyperlipidemia activity reported by Chowdhury et al. (2020).

Soymida febrifuga (Roxb.) Juss. (Meliaceae): Names assigned to this plant are *"Atiruha", Ati* meaning extremely and *Ruha* meaning heal up wounds, and "*Mamsarohini", Mamsa* meaning flesh; *Rohini* meaning red color. These names indicate healing of wounds, that could be related to the antibacterial activity of *S. febrifuga* (Mishra et al., 2017).

Syzygium aromaticum (L.) Merr. & L.M. Perry (Myrtaceae): This species is named as *"Candanapuspam", Candana* meaning cooling and *Puspam* meaning flowers. The name indicates its cooling property. Other name is "*Varisambhavam", Vari* meaning fragrance, *Sambhavam* existence. This name refers to the fragrance of flowers due to the presence of volatile essential oil and active ingredient eugenol, chemically known as 4-allyl-2-methoxyphenol (https://pubchem.ncbi.nlm.nih.gov/compound/Eugenol).

Senna tora (L.) Roxb. (Caesalpiniaceae): Two names are assigned to this plant: "*Cakramarda", Cakra* meaning circular appears like ringworm; *Mardah* meaning destroying *and "Dadrughana", Dadru* meaning sub cutaneous eruptions of skin, *Ghana* meaning destroyer. These names implies that the species was used to cure ringworm and sub cutaneous eruptions of the skin (prickly heat during summer). Acharya et al. (1975) reported that the plant contains Chrysophonic acid-9-anthrone, which is the major antifungal principle against *Microsporum canis, Candida albicans, Aspergillus fumigatus*. According to Rios et al. (1989) *S. tora* showed antibacterial activities against *Bacillus subtilis, Staphylococcus aureus, Pseudomonas aeruginosa, Proteus vulgaris, Escherichia coli***.** Phongpaichit et al. (2004) reported the antifungal activity from leaf extract of S. *tora* against *Trichophyton rubrum, Microsporum gypseum, Penicillium marneffi.*

Trichosanthes dioica Roxb. (Cucurbitaceae): several names were assigned to the species, such as "*Pandukah" and "Panduphala", Pandu* means jaundice*; Phala* meaning fruits. The meaning of the name implies that it is used to cure jaundice and anemic conditions. The uses indicated by these names are validated by reports about the hepatoprotective activity of aqueous and ethanolic extracts of the plant (Ghaisas et al., 2008). Another name is "*Kusthaha"*, means leprosy, and is attributed to its antibiotic activities (Bhattacharya & Haldar, 2010). The plant was also named as "*Viryagarbhapratanah"*, consisting of three components: *Virya,* meaning vigour or fertility; *Garbha,* meaning conception; *Pratanah,* meaning fall down. The meaning of the words reflects that it can cure weak uterine problems, such as frequent abortions, which is supported by reports of cytotoxic and wound-healing activity (Khandekar et al. 2018). One more name is "*Kasamuktidah", Kasa* meaning cough, *Mukti* relief and *Dah* heat of body. This name indicates that the plant can cure cough with fever, as confirmed by the antipyretic activity reported by Alam et.al. (2011). Its use as expectorant and antitussive properties has not been reported, therefore it needs further investigations. Most active principles are Cucurbitacin B and Trichosanthin which are showing lot of pharmacological activities (https://pubchem.ncbi.nlm.nih.gov/#query=Trichosanthin; https://pubchem.ncbi.nlm.nih.gov/#query=Cucurbitacin%20B).

Discussion and Conclusions

Based on these observations, the plant species included in this study can be divided into two classes:

1. Species for which the uses indicated by the Sanskrit names are supported by experimental evidence. This category includes: *Averrhoa carambola*, *Chrysopogon zizanoides, Cinnamomum tamala*, *Curcuma longa*, *Fagonia cretica, Gymnea sylvestre Hemidesmus indicus*, *Indigofera tinctoria, Justicia adhatoda*, *Jatropha glandulifera, Justicia adhatoda, Senna tora, Soymida febrifuga, Trichosanthes diocia*. The Sanskrit meanings of plant names is strictly related to their medicinal uses which are supported by relevant phytochemical and pharmacological activities.

2. Species for which the uses indicated by the Sanskrit names are not corroborated by present knowledge. This category includes six plants. *Artemisia vulgaris* is believed to be used to control many diseases; *Syzygium aromaticum* flowers, used as cooling agent; *Trichosanthes dioica,* administered as expectorant and antitussive; *Curcuma longa,* considered as an aphrodisiac and antifertility drug; *Hemidesmus indicus,* to whom are attributed cooling property; *Cinnamomum tamala* used to cure psychiatric problems. These uses are not confirmed by current relevant pharmacological and phytochemical data, therefore need further investigations.

The present study has revealed the true meanings of Sanskrit names of Indian medicinal plants, and possible rationales and validity of these names have been critically examined. Authors feel that further phytochemical and pharmacological studies are urgently needed, particularly for on the species included in the second class.

Author contributions

Conceptilisation: V.J.T., A.M.I
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Formal Analysis: V,J,T., A.M.I
Investigation: V.J.T.
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Project Administration: V.J.T.
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Writing-Original and Final Draft Preparation and Publication of Paper: V.J.T

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