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A Critical Review of Traditional Medicinal Herb *Enicostemma axillare*

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Abstract

The culture of Ayurveda is deeply rooted in Indian soil. It has become the lifestyle of people since ancient times. The literature explores plentiful medicinal plants being used to cure many diseases. *Enicostemma axillare* is one of the plants. It is also called as *Nahi*, Mamajjaka, etc. in several local languages. It is prominently found in Godawari basin, Gujrat, and the coastal region of India. It is found suitable for diseases majorly fever, anorexia, poor digestion, liver disorders, diabetes, snake bite, worms, wound healing, blood purification, etc. Normally it is consumed in the swarasa form by the folklore people. This paper is articulated to explore *Enicostemma axillare* for its names, references in Ayurveda and modern literature, characteristics, and medicinal utilities.

Keywords - *Enicostemma axillare, Mamajjaka, Nahi, Nighantu*, Plants.

Introduction

In India, medicinal herbs still inhabit the main part as a remedy for various diseases. Since ancient times folklore people have been using various ethnomedicinal herbs. This deep-rooted knowledge about plants of the native community can be used as medicine. *Enicostema axillare* (Poir. ex Lam.) A. raynal of the family Gentianaceae is a folk medicinal herb with excellent properties in various diseases and uses for ages[1]. In Indian systems of medicine, it is widely used under various names viz. *Mammajjak, Nagajihva, Nahi, Trunapatra* and *chhota chirayata* etc[2]. The plant parts like roots and leaves are used for several diseases such as loss of appetite, post-delivery care, fever, weight loss, diabetes, etc. This study aims to review *E. axillare* in classical and modern literature, and explore its characteristics and medicinal utilities.

E. axillare in Ayurvedic Literature

There is no reference found in *Vedic* literature about *E. axillare*. Not any description of this plant is found in *Brihattrayi* and *Laghuttrayi*. This herb has been mentioned in various Nighantu (Materia Medica of Ayurveda). The Herb was initially mentioned in *Shodhal Nighantu* (12th century AD) in *Lakshmanadi Varga*. Later in the 19th century, this has been mentioned in *Shaligram Nighnatu*. It is also mentioned in *Nighnatu Adarsha* and *Priya Nighnatu* of the 20th century.

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Synonyms: *Nahi, Nagajivha, tikshanpatra, Mamajjaka, Vitikshnika, Krumihrut*

Table 1. *Enicostemma axillare* in Ayurvedic Literature [3- 6]

Sr.No	*Nighnatu*	Author	*Varga*	Name
1	*Shodhal Nighnatu*	*Vaidyacharya Shodhal*	*Lakshmanadi*	*Nahi*
2	*Shaligram Nighnatu*	*Lala shaligram Vaishya.*	*Parishishtha bhag*	*Nagajivha*
3	*Nighnatu Adarsh*	*Bapalal Vaidya*	*Kiratadi Varga*	*Mamajjak*
4	*Priya Nighantu*	*Acharya Priyavat Sharma*	*Haritakyadi Varga*	*Nahi*

According to the opinions of some scholars of Ayurveda, ***Enicostemma axillare*** is taken as a source of many classical plants which are as follows

Table 2. Opinions of Scholars of Ayurveda [7- 11]

Sr. No.	Name of author	Name of Literature	Opinion
1	Prof. K. C. Chunekar	Plants of *Bhavaprakash*	As a representative of *Kiratatikta*
		Medicinal Plants of *Sushrut Samhita*,	One of the types of *Rasna*
2	Thakur Balwant Singh	Glossary of Vegetable Drugs in *Brahattrayi*	One type of *Rasna*
3	Brahmshankar Tripathi	Commentary on *Bhavprakash Nighantu*	As a representative of *Kiratatikta*
4	Dr.Bapalal Vaidya	Some Controversial Drugs in Indian Medicine	Types of *Rasna*
			Mamajjak
5	Dr. S. C. Sankhyadhar	Commentary on *Raj Nighantu*	Mentioned the plant as *Trunarasna*

Table –3: Names of *Enicostemma axillare* in various languages[12]

Language/Region	Name
Hindi	*Naay, Chhotaa Kiraayataa, Naai*
Marathi	*Kadvi naai*
Gujarati	*Maamijvaa, Maamejvaa, Madvinahi, Mamejavi, Mamejavo*
Telgu	*Chhevvu-kurti, Gulvidi, Nella-galli, Nela-guli, Nelagulimidi*
Urdu	*Naay*
Tamil	*Vellaruku, Arukumuli, Chakkiraviraiyantan, Vellari*
Punjabi	*Bahuguni*
Malyalum	*Vellari, Vellaruku*
Kannad	*Sogade, Karibandit*

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Kathiawar	*Mamejoo*
Bengal	*Nagajivha*
English	Whitehead, India Gentian
Bombay	*Manucha, Kada-vinayi. Mamijwa, Naichapiala*
Madras	*Vellarugu*
Sind	*Manucha*
Ceylon	*Vellarugu*

Ayurvedic Properties[12]

- *Rasa - Tikta*
- *Guna - Laghu Ruksha*
- *Veerya - Ushna*
- *Vipaka - Katu*
- *Doshaghnata – Kaphapittashamak*
- *Karma – Deepan, Amapachan, Krumighna, Raktashodhak, Shothahar, Vishaghna,*
- *Rogaghnata - Amadosh, Vibandha, Vishamjwara, Yakritdourbalya, Prameha, Twagvikara,*

Ayurvedic formulation *Vayuchhya Surendra taila, Vellurugu churnam.*

***Enicostemma axillare* in Ethnobotany**

Tradition practitioners of India use *E. axillare* in the treatment of various diseases. The decoctions attained from the leaves are used in rheumatism, abdominal ulcers, hernia, swelling, itches, and insect poisoning.[13] It improves hunger and assimilation.[14] This plant is used in the management of fever, rheumatism, itching, hernia, and insect poisoning.[15-17] In western India, the plant has been used in the treatment of diabetes mellitus as folk medicine. Traditional healers used a decoction of *E. Littorale* for malaria and dyspepsia.[18]

***Enicostemma axillare* in modern literature**

Classification and Description of *Enicostemma axillare* [19]

Kindom – Plantae
Subdivision – Angiosperm
Class – Dicotyledon
Order – Gentianles
Famiy – Gentianceae
Genus – Enicostemma
Species – axillare

Phytomorphology of *E. axillare* [20]: It is a 6-30 cm high perennial herb. The Stalk is cylindrical and glabrous. Leaves are sessile sometimes narrowed into a petiole like base; leaf blade is linear to lanceolate, oblong, entire, obtuse & mucronate at apex. Inflorescence in many flowered auxiliary clusters. Flowers are white with green lines, sessile or sub sessile; bracts long, shorter than calyx. Calyx tube 1-2 mm long. Corolla tube 3.5-6.0 mm. stamens inserted below the sinus, just above the middle of the tube; filament 1.5-2.3 mm long.

Phytoconstituents of E. *axillare:* This plant comprises different chemical compounds. Many compounds have been isolated from the plant, *E. littorale* viz. Vanillic acid, syringic acid, p-

hydroxy benzoic acid, protocatechuic acid, p-coumaric acidand furulic acid.[21] Enicoflavin, apigenin, genticrucine, genkwanin, isovitexin, swertisin, saponarin, and 5-oglucosyliswertisin.[22] Verticilliside, catechins, saponinsand sapogenins.[23] different amino acid like L- glutamic acid, tryptophane, alanine, serine aspartic acid, L-proline, L-tyrosine, threonine, L-histidine monohydrochloride, methionine, DOPA, L-glycine.[24] swertiamarin[25] . Minerals like iron, potassium, sodium, calcium, magnesium, silica, phosphate, chloride, sulphate and carbonate.[26]

Pharmacological properties of *E. axillare*

E. axillare displays important therapeutic action on different systems of the body. It decreases BSL, polydipsia, and polyphagia symptoms and also reduces serum cholesterol and triglyceride levels in diabetic animals. [27, 28] It has antifungal activity especially against A. niger and C. albicans in extract form.[29] In pathogens like staphylococcus aureus, Pseudomonas aeruginosa, salmonella typhi, and Shigella sonnei E. axillare shows prominent antibacterial activity. [30] Arial part of this drug exhibits an anthelminthic effect.[31] Phyto constitute swartiamarin isolated from E. axillare possess peripheral and central antinociceptive activity.[32] Aqueous leaf extract shows antioxidant effects and is useful in hyperlipidaemic conditions. [33] The arial part shows anti-inflammatory and antiulcerative activity in rats.[34] The metholic extract of E. littorale has antitumor activity in swiss albino mice.[35] Extract demonstrates hepatotoxin detoxication property in rats and ethanol extract exerts hepatomodulatory response which provides a rationale for the use of E. *axillare* in liver disorders.[36, 37] Extract shows protective effect in diabetic neuropathy in male charles foster rats.[38]

Conclusion

The present review highlights various aspects of *Enicostema axillare* (*Nahi*) including literary, fundamental, pharmaceutical, and clinical facts mentioned in Ayurveda. The whole plant as panchang is useful in various diseases such as diabetes, obesity, cough, pyrexia, stomach pain, snake bite, etc. as mentioned in Ayurveda literature. Ethanobotanical criticism suggests that folk people use it as medicine in many diseases, detailed literature investigation is carried out from the published research papers from journals, suggesting that the researchers explored the plant with respect to phytochemical analysis, medicinal properties, and usefulness in many diseases. This article is the outcome of a wide range of literature appraisal, which suggested that there is a need to study *Enicostemma axillare* more pertaining to diseases both in vitro and in vivo.

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