

**EVALUATION AND UNDERSTANDING OF THE TAXONOMICAL CHARACTERISTICS, PHARMACOLOGICAL ATTRIBUTES, AND THERAPEUTICAL POTENTIAL OF THE DRUG SASHASRUTI / EMELIA SONCHIFOLIA (LINN.) D.C – A LITERARY REVIEW**

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**ABSTRACT**

The world has witnessed the growth of medical science through ages, and ayurveda has been in focus and usage since the vedic period. Medicinal plants claim a major role in the growth and acceptance of the science. Being one of the 3 sources of ayurvedic medicine, medicinal plants have always astonished and surprised the world by its effectiveness and therapeutic potential. Ayurveda advocates the usage of plants as a single drug therapy as well as combinations in compound formulations. For successful usage and application of both therapies, perfect understanding of the drugs or the ingredient plants are a key factor. The phytochemical constituents, secondary metabolites in the plants is responsible for a wider variety of medicinal uses exhibited by

the plant. Newer and newer applications of an individual plant could be discovered by in-depth exploration of its pharmacological attributes. The article focuses on the drug *Shashasruti / Emelia sonchifolia* (Linn) DC belonging to the Asteraceae family. The main objective of the article is to explore and understand the pharmacological properties, actions and therapeutical potential of *Emelia sonchifolia* (Linn) DC thereby widening the area of application of the plant for therapeutical and research purposes.

**KEYWORDS:** Sashasruti, *Emelia sonchifolia*, pharmacological properties, therapeutic potential.

## INTRODUCTION

Mankind has witnessed the growth and development of various medical sciences throughout the history and ayurveda holds the place for being one of the most ancient medicinal system utilizing the medicinal properties of plants, animal products and minerals. Plants have held the major portion among the source of medicine via its diverse nature and widespread availability. Usage of plants as herbal remedies has ignited the research minds to understand the involvement of the pharmacological components especially the secondary metabolites of the drug which overtime has proved to be the prime factors that could help in newer drug development to combat and overcome various diseases and ailments.

Recent decades have witnessed a growing demand for plant-based medicines, herbal products, nutritional supplements, cosmetics and one of the major reason for this increased popularity and demand towards herbal medicine and products is the therapeutical potential of various secondary metabolites present in the plants. This has led the researchers to identify newer and newer plants and understand the pharmacological profile of the drug including the physio-chemical constituents in the drug for effective utilization in single drug therapy as well as compound formulations.

Sashasruti / *Emelia sonchifolia* is an important ayurvedic herb which has been in usage by regional people of kerala both in single drug therapy as well as an ingredient in various combinations like Dasha pushpa, Karkidaka Kanji etc. Traditionally the drug is used to overcome tonsillitis. The drug is locally called as Muyalcheviyan which refers to the shape of the leaf resembling the ear of a rabbit. Detailed explanation of the drug can be found only in texts like sahasrayogam, Oushadha sasyangal as well as modern compilations like Indian medicinal plants, Hortus malabaricus etc.

In addition to the mentioning of the drug in all above said contexts, the drug is also mentioned as remedy in both ayurveda and siddha system of medicine.

### Aim of The Study

The main aim of the study is to evaluate and understand the taxonomical characteristics, pharmacological attributes and therapeutical potential of the drug Sashasruti / *Emelia sonchifolia* with respect to the references available.

## MATERIALS AND METHODS

Relevant sections of all ayurveda classics including various Samhita, Nighantus, regional ayurvedic texts, modern compilations were referred to collect the ayurvedic literature on the drug *Sashasruti Emilia sonchifolia* (Linn.) D.C Information regarding action in general, pharmacological evaluation and study on the phytochemical constituents of the drug was also collected through internet and other reliable sources.

**Botanical Name:** *Emilia sonchifolia* (Linn.) D.C.

**Family :-** Asteraceae.

**Table 1: Botanical Name, family and part used.<sup>[1]</sup>**

Drug	Botanical Name	Family	Part used
Shashasruti	<i>Emilia sonchifolia</i> (Linn.) D.C	Asteraceae	Whole plant

### Taxonomy

Kingdom	-	Plantae
Phylum	-	Tracheophyta
Class	-	Magnoliopsida
Order	-	Asterales
Family	-	Asteraceae
Genus	-	<i>Emilia</i>
Species	-	<i>Emilia sonchifolia</i> (Linn.) D.C.

### Vernacular Names

Malayalam	:	Muyalcheviyan
English	:	Purple sow thistle
Tamil	:	Muyalchevi
Hindi	:	Hirankhuri

Sasasruti / *Emilia sonchifolia* (Linn.)D.C is one among the mentioned in ayurveda. The basonym sasasruti basically refers to the shape of the leaf which resembles the ear of a rabbit. As such there is no reference and mentioning of the drug in samhitas and nighantus. The drug is explained in detail in classical kerala literatures like Oushadha sasyangal by Dr. S. Neshamani and Chikitsavijnanakosham. The explanation of the drug can also be seen in

modern compilation textbooks like Indian Medicinal plants – A compendium of 500 species, Flora of British India, Pharmacognosy of ayurvedic drugs.

**Table 2: Habit & Habitat of *Emelia sonchifolia* (Linn.).<sup>[2]</sup>**

<b>Habitat</b>	Throughout India, dry and moist deciduous forests, also in the plains, tropical and Subtropical Africa and Asia
<b>Habit</b>	The plant is 30-40cm in height and glabrous slender, branched annual herb
<b>Root &amp; stem</b>	Stem- Hairy, soft, erect, Cylindrical, dark green, herbaceous Root- Taproot branched.
<b>Leaves</b>	Simple, Alternate, Insertion -Cauline and ramal, Shape -Obovate, Shape - Obovate, Margin -Irregularly toothed, Apex is Obtuse or acute, Base -Round, green, Lamina- kidney shaped, ovate, short petiole, green color.
<b>Inflorescence</b>	Head terminal, 3-6 stalked flower heads each with a whorl of bract beneath. There are 30-60 florets per head, the outer one's female and the inner ones with both stamens and stigma.
<b>Flowers</b>	Purplish, Complete, bisexual, pentamerous, No of Petals :- 5, Gamopetalous, inferior ovary
<b>Fruit</b>	Oblong, dry indehiscent ribbed achene
<b>Seeds</b>	white, fluffy, wind born seeds. Non-endospermic

Table 3 explains the Pharmacological properties / Rasa panchaka of the Sasasruti. There appears to be a slight difference in opinion regarding the rasapanchaka of Sasasruti based on 2 different compilative texts available. Rasa includes Kashaya and Madhura, possess laghu, grahi ushna guna, ushna veerya and Madhura vipaka.

**Table 3: Pharmacological Properties of *Emelia sonchifolia* (Linn.)D.C.**

<b>Drug</b>	<b>Rasa</b>	<b>Guna</b>	<b>Virya</b>	<b>Vipaka</b>
Sashasruti	Kashaya, Madhura <sup>[3]</sup> Katu, Tikta, Kashayam <sup>[4]</sup>	Ushna, Laghu Laghu, Grahi	Ushna Ushna	Madhura Katu

Ayurveda advocates that the action of a drug can be brought about by the virtue of its pharmacological properties referring to its Rasa, Guna, Virya, Vipaka and Prabhava. Since the action can be brought about by any of these rasapanchaka, its highly necessary to understand the pharmacological properties of the drug to understand its therapeutic and pharmacological potential. Since the drug *Emelia sonchifolia* / Sashasruti is least explained in classical literatures like nighantus and samhitas, information of the drug is mentioned and explained in compilation texts like Indian medicinal plants.

**Table 4: Pharmacological actions and therapeutical indication of Sasasruti.<sup>[5]</sup>**

Drug	Action on dosha	Action on body	Action on indriya	Indications
Sashasruti	Vatahara	Krimihara Kanthya	Chakshushya Karnya	Jwara Krimi Akshiroga Karnaroga Naktandhya vataroga

On Analysis of the pharmacological action of the drug, based on the rasapanchaka as well, it is observed that the drug is Vatahara in nature and krimighna and kanthya. The modern reference texts as well as folklore medicine advocates the effect of the drug on indriyas as chakshushya and Karnya. On assessment of the therapeutical indication, it is evident that the drug is indicated specifically in diseases of eyes, ear and throat as well as diseases of Vata origin, jwara and krimiroga.

#### Chemical Constituents in Sashasruti

Aerial parts <sup>[6]</sup>	Stem <sup>[7]</sup>	Whole plant <sup>[8]</sup>	Seeds <sup>[9]</sup>
Senkirkine Doronine Quercetin Quercitrin Rutin Kaempferol -3-β-D galctoside Ursolic acid n-hexacosanol tricontane Pyrrolizidine	5,7,8-trihydroxy 6 Gehuain Kaempferol 3-0- alpha-l- rhamnopyrasonol	Simiral Beta-Sitosterol Stigmasterol Palmitic acid	glycoside 3,7,3' 4'-tetrahydroxy-flavone- 3-O-βD-xylopyranosyl- (1→3)-O-β-D- galactopyranosyl- (1→4)- O-α-L- rhamnopyranoside Luteolin -7-0- β-D- Glucoside Isoetin 5'-methyl ether

**Table 5: Proven Pharmacological activity of Sashasruti.**

Pharmacological activity	Proven
Antimicrobial activity	Yes <sup>[10]</sup>
Antiviral activity	Yes <sup>[11]</sup>
Antioxidant activity	Yes <sup>[12]</sup>
Analgesic activity	Yes <sup>[13]</sup>
Anti-inflammatory activity	Yes <sup>[14]</sup>
Hepatoprotective activity	Yes <sup>[15]</sup>

#### DISCUSSION

*Emelia sonchifolia* / Sashasruti is a herb that belongs to asteracea family that is extra pharmacopeal in nature. The drug has not been explained or described in samhitas and Nighantu. But ample reference of the drug can be seen in various texts like Hortus

Malabaricus, Indian Medicinal plants, Indian Materia Medica etc. The drug has been included under “Dasha pushpa” and ethnomedicine. The regional texts of Kerala – Kriyakaumudi, Sahasrayogam have included the drug in various formulations mentioned for Visha chikitsa or poison.

In Hortus Malabaricus, the kashaya of whole plant is indicated for Jwara and Swasa. Swarasa of the drug taken with sugar indicated for Atisara. For wound healing lepa of kalka with navaneetha is indicated.<sup>[16]</sup> The plant is documented in ethno medicine to possess medicinal benefits in treating diarrhea, night blindness and sore throat, rashes, measles, inflammatory diseases, eye and ear ailments, fever, stomach tumor, malaria, asthma, liver diseases, eye inflammation, earache and chest pain.<sup>[17]</sup>

Going through the ayurvedic pharmacological profile of *Emelia sonchifolia* (Linn.) DC, it is observed that Sashasruti has Kashaya, Madhura, Katu, Tikta rasa, Katu vipaka and Vatahara in nature. Assessment of Pharmacological activity proven indicates that the drug Sashasruti is Antimicrobial, Antiviral in nature which parallels the classical mentioning of its krimighna and kanthya property, inclusion in tonsilitis and ear infections. The drug also is found to have Antioxidant analgesic and anti-inflammatory properties which substantiates its usage in conditions of infections pertaining to organs above shoulder.

The assessment of chemical constituents present on various useful parts of the plant revealed various important constituents that can be held responsible for the many promising multidimensional pharmacological activities. Research works regarding the drug has revealed that the drug *Emelia sonchifolia* contains alkaloids, flavonoids, terpenes, quercetin, stigmasterol which are have been included as secondary metabolites that are associated with many of the pharmacological activities exhibited by the drug.

## CONCLUSION

On comprehensive review and understanding of the drug sashasruti, it is evident, even though the drug is least mentioned in samhitas and nighantus, the drug holds high regard and usage relevance in ethnobotanical and folklore medicine as well as ingredient in various formulations that could combat envenomation. The drug has been included in various groups like karkidaka kanji, Dasa pushpa referencing to its medicinal usage in combating micro-organisms and promoting health status. This primary literary review analysis paves the way for establishing newer therapeutical applications of the drug Sashasruti.

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