

Therapeutic and Safety Aspects of *Amrita*

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Abstract: *Amrita (Guduchi)* has been used in Ayurvedic preparations for the treatment of various ailments throughout the centuries. It is used as a rasayana to improve the immune system and body resistance against infections. The whole plant is used medicinally; however, the stem is approved for use in medicine as listed by the Ayurvedic Pharmacopoeia of India. The phytoconstituents reported from this herb belong to different classes, such as alkaloids, diterpenoid lactones, glycosides, steroids, phenolics, aliphatic compounds and polysaccharides. Various properties of *amrita* has been described in ancient texts of Ayurveda, like *Rasayana, Sangrahi, Balya, Agnideepana, Tridoshashamaka, Dahnashaka, Mehnashaka, Kasa-swasahara, Pandunashaka, Kamla-Kushta-Vataraktanashaka, Jwarhara, Krimihara, Prameha, Arshnashaka, Kricch-Hridroganashak, etc.*, are acquiring scientific validity through modern researches. Potential medicinal properties reported by scientific research include anti-diabetic, antipyretic, antispasmodic, anti-inflammatory, anti-arthritic, antioxidant, anti-allergic, anti-stress, anti-leprotic, antimalarial, hepato-protective, immuno-modulatory and anti-neoplastic activities. This review brings together various properties and medicinal uses of *amrita* described in Ayurvedic classical texts along with phytochemical and pharmacological characters.

Keywords: Anti-leprotic, *Balya*, Phytoconstituents, *Prameha*, *Rasayana*, *Tridoshashamaka* etc.

1. Introduction

Amrita is a very potential drug in *ayurveda*. It is mentioned among the four *medhya*⁽¹⁾ *rasayana* by *acharya caraka* and has numerous benefits. Its latin name is *Tinospora cordifolia* (Willd.) Hook. f. and Thoms. In Hindi, the plant is commonly known as *Giloe*, which is a Hindu mythological term that refers to the heavenly elixir that has saved celestial beings from old age and kept them eternally young.

Synonyms:

Guduchi, amrita, chinmaruha, Chinmodbhava, kundalini Vatsadani, (Sanskrit), *Guluncha* (Bengali), *Gurcha* (Hindi), *Garo, Galac* (Gujarati), *Thippateega* (Telugu), *Amrutavalli* (Kannada), *Amrita, Gilo* (Kashmiri), *Chittamruti* (Malayalam), *Gulvel* (Marathi), *Guluchi* (Oriya), *Gilo* (Punjabi), *Seendal, Seendil Kodi* (Tamil), *Siddhilata, Amarlata* (Assam) (Bhav Prakash²)

Other common names and synonyms⁽³⁾ are: *Madhuparni, Guduchika, Chinna, dhara, somvalli, kundali, naagkumari, chinnangi, jwaranashini, jeewanti, devnirmita, vyastha, mandali, saumaya, vishalya, amritasambhava, pindamrita, bahuchinna, kandarohini, rasayani, mrittika, chandrasahsa, bhishagjita. Tantrika,, Chakralakshanika*

In *Nighantu adarsha*,⁽⁴⁾ the meanings of some of its synonyms are very beautifully explained like:

- *Guduchi* – *Guda Rakshane* which means one which protects the entire body from diseases.

- *chinnarooha-Chinna api rohati*: means which grows up after cutting.
- *Tantrika –Tantri kutuba dharne*: means which protects the lives of whole family.
- *Amrita-na mritamasya*: means which enhance the vitality and longevity of life.
- *Madhuparni-madhumayani parnaanyasya*: means having sweet leaves.
- *Chakralakshanika* means stem shows *chakrakara* appearance when cut inside.
- *Vatsadani-vatse adayate* means mammals eat it.

Habitat and Morphology⁽⁵⁾:

It is a perennial climber belonging to the family Menispermaceae found throughout Tropical India. Stem of *T. cordifolia* appears in varying thicknesses, ranging from 0.6 to 5 cm in diameter; young stems are green with smooth surfaces and swelling at nodes, while the older ones show a light brown surface marked with warty protuberances due to circular lenticels; transversely smoothed surface shows a radial structure with conspicuous medullary rays. The leaves are membranous and cordate. The flowers are small and yellow or greenish yellow. The seeds are curved. Fruits are fleshy and single seeded. Flowers grow during summer; and fruits, during winter. Drug is collected during summer preferably in the month of May, drug is used in fresh form also.



2. Literary Review

If we take a look on our *samhitas*, total five synonyms of *guduchi* are available in *caraka samhita* and it is included under seven different *dashemani*. Description of *guduchi* is found at 41 places and included in 9 *gana* based on its therapeutic uses in *sushruta samhita*. In *dhanvantri nighantu*, *guduchi* was mentioned first in out of seven *vargas*. 34 synonyms and two varieties⁽⁵⁾: *Guduchi* and *Kanda guduchi* are explained. In *kaidev nighantu*, 19 synonyms with two varieties: *Guduchi* and *Padma guduchi*⁽⁶⁾ are explained. In *bhavprakash nighantu*, *guduchi* has been described in *guduchyadi varga* with 21 different synonyms. In *Raj nighantu*⁽⁷⁾, 31 synonyms with two varieties *Guduchi* and *kanda guduchi* has been explained. In *Shaligram nighantu*,⁽⁸⁾ 9 synonyms of *guduchi* and 6 synonyms of *kanda guduchi* has been explained. Different *acharyas* has classified the drug in different groups or categories on the basis of its nature, karma, rogagnata etc. This is summarised in the table no.1.

Table 1: Showing the description of *guduchi* in different *gana/varga/mahakasaya* of different classical texts

| Samhita | Name used in the context | Varga/Mahakasaya |
|------------------------|--------------------------|---------------------------------------|
| Caraka samhita | <i>Guduchi</i> | <i>Sandhaniya</i> ⁽⁹⁾ |
| | <i>Guduchi</i> | <i>Triptighana</i> ⁽¹⁰⁾ |
| | <i>Guduchi</i> | <i>Stanyashodhana</i> ⁽¹¹⁾ |
| | <i>Guduchi</i> | <i>Trishnanigraha</i> ⁽¹²⁾ |
| | <i>Guduchi</i> | <i>Dahaprashamana</i> ⁽¹³⁾ |
| | <i>Amrita</i> | <i>Vayasthapana</i> ⁽¹⁴⁾ |
| | <i>Guduchi</i> | <i>Madhura skanda</i> ⁽¹⁵⁾ |
| | <i>Guduchi</i> | <i>Tikta skanda</i> ⁽¹⁶⁾ |
| | <i>Guduchi</i> | <i>Shirovirechana</i> ⁽¹⁷⁾ |
| <i>SushrutaSamhita</i> | <i>Vatsadani</i> | <i>Vatasanshaman gana</i> |

| | | |
|--|--------------------------------------|--|
| | <i>Chinnaruha</i> | <i>Pittasanshaman gana</i> |
| | <i>Guduchi</i> | <i>Shleshmasanshaman gna</i> |
| | <i>Guduchi</i> | <i>Shodhana Varga</i> |
| | <i>Amrita</i> | <i>Ropana gana</i> ⁽¹⁸⁾ |
| | <i>Guduchi</i> | <i>Aaragvadhadi gana</i> ⁽¹⁹⁾ |
| | <i>Guduchi</i> | <i>Shyamadi gana</i> ⁽²⁰⁾ |
| | <i>Guduchi</i> | <i>Patoladi gana</i> ⁽²¹⁾ |
| | <i>Chinnaruha</i> | <i>Kakolyadi gana</i> ⁽²²⁾ |
| | <i>Guduchi</i> | <i>Guduchyadi gana</i> ⁽²³⁾ |
| | <i>Guduchi</i> | <i>Vallipanchmoola</i> ⁽²⁴⁾ |
| Ashtanga Hridya | <i>Guduchi</i> | <i>Shaka varga</i> ⁽²⁵⁾ |
| | <i>Amrita</i> | <i>Shaka Varga</i> ⁽²⁶⁾ |
| | <i>Amrita</i> | <i>Padmakadi gana</i> ⁽²⁷⁾ |
| | <i>Guduchi</i> | <i>Patoladi gana</i> ⁽²⁸⁾ |
| | <i>Guduchi</i> | <i>Guduchyadi gana</i> ⁽²⁹⁾ |
| | <i>Amrita</i> | <i>Aaragvadhadi gana</i> ⁽³⁰⁾ |
| <i>Chinnaruha</i> | <i>Shyamadi gana</i> ⁽³¹⁾ | |
| <i>In Nighantu</i> | | |
| <i>Bhavprakash nighantu</i> ⁽⁶⁾ | <i>Guduchi</i> | <i>Guduchyadi varga</i> |
| <i>Nighantu adarsha</i> ⁽⁴⁾ | <i>Guduchi</i> | |
| <i>Dhanvantri nighantu</i> ⁽³⁾ | <i>Guduchi</i> | |
| <i>Rajnighantu</i> ⁽⁷⁾ | <i>Guduchi</i> | |
| <i>Sodhala nighantu</i> | <i>Guduchi</i> | |
| <i>Shaligram nighantu</i> | <i>Guduchi</i> | |
| <i>Kaidev nighantu</i> | <i>Guduchi</i> | <i>Aushadhiya varga</i> |
| <i>Priya nighantu</i> | <i>Guduchi</i> | <i>Pippalyadi varga</i> |

Rasapanchaka (Pharmacodynamic properties) of Guduchi:

Based on the *rasa panchaka*, *Guduchi* is having *tikta kasaya rasa*, *laghu* and *ushna* in nature, *madhura vipaka* and *tridoshashamaka*.⁽⁵⁾ Various classical texts of *ayurveda* have claimed a wide range of therapeutic attributes of *guduchi*. Slight difference in the views of different *acharya* regarding pharmacodynamic properties of *guduchi* is listed in table no.2

Table 2: Showing the *Rasapanchaka* (pharmacological properties) of *guduchi* according to different classics:

| Sr. No. | Classical Text | Rasa | Guna | Veerya | Vipaka | Prabhava/Karma |
|---------|-----------------------------|----------------------------|----------------------|---------------|----------------|---------------------|
| 1. | <i>Caraka samhita</i> | <i>Tikta</i> | <i>Guru</i> | <i>Ushna</i> | <i>Madhura</i> | <i>Vatahara</i> |
| 2. | <i>Sushruta samhita</i> | <i>Tikta</i> | <i>Guru</i> | - | <i>Guru</i> | <i>Aamhara</i> |
| 3. | <i>Ashtanga samgraha</i> | <i>Tikta</i> | - | <i>Ushna</i> | - | <i>Sangrahi</i> |
| 4. | <i>Ashtanga Hridya</i> | <i>Tikta</i> | - | <i>Sheeta</i> | <i>Guru</i> | |
| 5. | <i>Bhavprakash nighantu</i> | <i>Katu, tikta</i> | <i>Laghu</i> | <i>Ushna</i> | <i>Madhura</i> | <i>Vatpittahara</i> |
| 6. | <i>Dhanvantri nighantu</i> | <i>Tikta, kasaya</i> | <i>Guru</i> | <i>Ushna</i> | - | <i>Hridya</i> |
| 7. | <i>Nighantu Adarsha</i> | <i>Katu, tikta, kasaya</i> | - | <i>Ushna</i> | <i>Madhura</i> | - |
| 8. | <i>Madanpal nighantu</i> | <i>Katu, tikta, kasaya</i> | <i>Laghu</i> | <i>Ushna</i> | <i>Madhura</i> | - |
| 9. | <i>Rajnighantu</i> | <i>Tikta, kasaya</i> | <i>Guru</i> | <i>Ushna</i> | - | <i>Vahnikrita</i> |
| 10. | <i>Kaidev nighantu</i> | <i>Tikta, kasaya, katu</i> | <i>Laghu</i> | <i>Ushna</i> | <i>Madhura</i> | <i>Balyaa</i> |
| 11. | <i>Shaligram nighantu</i> | <i>Tikta, m kasaya</i> | <i>Guru, ushna</i> | <i>Ushna</i> | <i>Madhura</i> | <i>Aayushya</i> |
| 12. | <i>Dravya guna vigyanam</i> | <i>Tikta, kasaya</i> | <i>Guru, snigdha</i> | <i>Ushna</i> | <i>Madhura</i> | - |

Dose and adjuvants ⁽³²⁾:

Classical dose of different dosage forms of *guduchi* is as follows:

Guduchi powder: 1-3 *masha* (1-3g)

Guduchi kwatha: 4-8 *tola* (40-80ml)

Guduchi satva: 5-15 *ratti* (1-2g)

Specific adjuvants are mentioned in *dhanvantri nighantu* ⁽³³⁾ for different diseases which are as follows:

Vata vikara: *ghrita*

Pitta vikara: *sharkara*

Kapha vikara: *Madhu*

Vibandha: *Guda* (jaggery)

amvata: *Shunthi*

Therapeutic uses of *guduchi*:

The starch obtained from the roots and stems of the plant is similar to arrow root in appearance and effect. It answers not only as remedial medicinal agent in chronic diarrhoea and

some forms of obstinate chronic dysentery but it is also a valuable nutrient when there is intestinal irritability and inability to digest any kind of food. It is useful in relieving the symptoms of rheumatism. Freshly prepared juice acts as powerful diuretic. In certain parts of India, the plant is regarded as a specific for the bites of poisonous insects and venomous snakes. Among the mundas of chota Nagpur, the whole plant, well ground is applied on fractures. In Ceylon, the stems are used in fevers, skin diseases, jaundice and syphilis. (Indian medicinal plants vol 1 page. No.77).

Various classical texts has highlighted a no. of actions, therapeutic indications and clinical application of *guduchi*. Some texts has also mentioned specific *anupana* (adjuvant) of *guduchi* for specific disease These therapeutic indications, different dosage forms with specific *anupana* are compiled in the table no.3:

Table 3: Showing therapeutic indication with *anupana* of *guduchi* according to different *acharya*

| <i>Samhita</i> | Therapeutic Indication | Dosage Form | <i>Anupana</i> (Adjuvant) |
|-------------------------|--|----------------------------|------------------------------|
| <i>Carka Samhita</i> | <i>Rasayana</i> ⁽¹⁾ | <i>Guduchi swarasa</i> | - |
| | <i>Vishama jwara</i> ⁽³⁴⁾ | <i>Guduchi kwatha</i> | - |
| | <i>Halimaka</i> ⁽³⁵⁾ | <i>Guduch swarasa</i> | - |
| | <i>Pittaja chardi</i> ⁽³⁶⁾ | <i>Guduch swarasa</i> | - |
| | <i>Stanyashodhana</i> ⁽³⁷⁾ | <i>Guduchi kwatha</i> | - |
| <i>Sushruta samhita</i> | <i>Vatrakta</i> | <i>Guduchi swarasa</i> | - |
| | <i>Arsha</i> | <i>Guduchi swarasa</i> | <i>Takra</i> |
| | <i>Vataja jwara</i> ⁽³⁸⁾ | <i>Guduchi kwatha</i> | |
| | <i>Prameha</i> | <i>Guduchi swarasa</i> | <i>Honey</i> |
| <i>Bhavaprakasha</i> | <i>Balya</i> | <i>Guduchi churana</i> | Jaggery+Honey+Goghrita |
| | <i>Jeerna jwara</i> ⁽³⁹⁾ | <i>Guduchi kwatha</i> | <i>Pippali+Honey</i> |
| | <i>Kamla</i> ⁽⁴⁰⁾ | <i>Guduchi patra kalka</i> | <i>Takra</i> |
| | <i>Arsha</i> ⁽⁴¹⁾ | <i>Guduchi swarasa</i> | <i>Takra</i> |
| | <i>Halimaka</i> | <i>Guduchi swarasa</i> | <i>Mahisha dugdha+ghrita</i> |
| | <i>Vataja raktapradara</i> | <i>Guduchi swarasa</i> | |
| | <i>Stanya shodhana</i> ⁽⁴²⁾ | <i>Guduchi kwatha</i> | |
| | <i>Pittaja chardi</i> | <i>Guduchi swarasa</i> | |
| <i>Chakradatta</i> | <i>Jwara</i> | <i>Guduchi satva</i> | |
| | <i>Shalipada</i> | <i>Guduchi swarasa</i> | <i>Tila taila</i> |
| <i>Sharangdhara</i> | <i>Jwara</i> | <i>Guduchi patrashaka</i> | |
| | <i>Pilla roga, arma, timira</i> | <i>Guduchi swarasa</i> | Honey+Saindhava lavana |
| | <i>Jeerana jwara</i> ⁽⁴³⁾ | <i>Guduchyadi kwatha</i> | |
| | <i>Vaatrakta</i> ⁽⁴⁴⁾ | <i>Guduchi kwatha</i> | <i>Aranda taila</i> |
| | <i>Prameha</i> ⁽⁴⁵⁾ | <i>Guduchi swarasa</i> | <i>Honey</i> |
| | <i>Kamla</i> | <i>Guduchi swarasa</i> | |

Different polyherbal formulations of *Guduchi*:

A no. of references are there pertaining to clinical application of *Guduchi* in different diseases in our *samhitas*. The herb is mentioned for both internal and external therapeutic use under various formulations. Herb is also used in *panchkarma* therapy and other procedures. These all are enlisted in the table no.4, 5 and 6 below:

Table 4: Showing different polyherbal formulations of *Guduchi* with their therapeutic indication

| Formulation | Therapeutic Indication |
|-----------------------------|------------------------|
| <i>Amrita satva</i> | <i>Jwara</i> |
| <i>Sanshamni vati</i> | <i>Jwara</i> |
| <i>Guduchyadi Modaka</i> | <i>Jwara</i> |
| <i>Amritadyarishta</i> | <i>Jwara</i> |
| <i>Guduchyadi kwatha</i> | <i>Pittaja Jwara</i> |
| <i>Guduchyadi rasakriya</i> | <i>Netraroga</i> |
| <i>Amrita ghrita</i> | <i>Jeerana jwara</i> |

| | |
|-----------------------------|---|
| <i>Amrita ghrita</i> | <i>Aamvaata (chakradatta 25-58/59)</i> |
| <i>Amritadya ghritam</i> | <i>Vaatrakta (Bhav prakasha madhyama khanda vaatraktadhikara 29/102, 108, 110.117, 138/144.132/137)</i> |
| <i>Mahaguduchi ghritam</i> | <i>Vaatrakta</i> |
| <i>Guduchi Tailam</i> | <i>Vaatrakta</i> |
| <i>Amritavhya Tailam</i> | <i>Vaatrakta</i> |
| <i>Bala Taila</i> | <i>Mudhagarbha</i> |
| <i>Agurvadi Taila</i> | <i>Sheetaja jwara</i> |
| <i>Vishamjwarahara yoga</i> | <i>Visham jwara (caraka)</i> |
| <i>Mahakhadir ghrita</i> | <i>Sarwakushtha</i> |
| <i>Amritadya guggulu</i> | <i>Medo Roga</i> |

Table 5: Showing *Guduchi* in panchkarma and other procedures:

| Formulation/Procedure | Therapeutic use |
|--|--------------------------|
| <i>Guduchyadi niruha basti</i> | <i>Jwara</i> |
| <i>Patoladya anuvaasna basti</i> | <i>Jwara</i> |
| <i>Guduchyadi yoga for virechana</i> | <i>Kaph janya roga</i> |
| <i>Guduchyadi yoga for anuvaasana basti</i> | <i>Sarva vata vikara</i> |
| <i>Patoladi kwatha for vamaana and virechana</i> | <i>Vartama Roga</i> |
| <i>Shampakai asthapana basti</i> | <i>Grahani</i> |
| <i>Guduchi-nimba kalka yukta taila for nasya</i> | <i>Mukharoga</i> |

Table 6: Showing *Guduchi kalpa* for External application:

| Formulation/Procedure | Therapeutic use |
|--|--------------------|
| <i>Rasnadi ghrita pradaha</i> | <i>Vatrakta</i> |
| <i>Guduchyadi parisheka sweda</i> | <i>Rajyakshama</i> |
| <i>Kulathikadi pralepa</i> | <i>Agni-rohini</i> |
| <i>Chitrakadi yoga for lepa</i> | <i>Kushtha</i> |
| <i>Guduchyadi ghrita for abhyanga</i> | <i>Mukhroga</i> |
| <i>Guduchyadi kwatha for parisechana</i> | <i>Guhyaroga</i> |
| <i>Guduchi patra acchadana</i> | <i>Atidagdha</i> |

Active phytoconstituents of *Guduchi* and their biological role:

The plant contains some alkaloids, diterpanoid lactones, some glycosides, steroids, giloin, giloinin, tinosporic acid, various antioxidants like ascorbic acid, lycopenes, carotene, anthocyanin etc. and some minerals like calcium, phosphorus, zinc, copper, iron etc. Biological activities of these phytoconstituents has been described in table no.7:

Table 7: Showing phytoconstituents of *Guduchi* along with their properties

| Active phytoconstituents | Properties |
|---|---|
| Alkaloids: berberin, tinosporin, magnoflorin, choline, aporphine, palmetin etc. | Anti-cancer, anti-viral, anti-inflammatory, neuroprotective, immunomodulatory. |
| Glycosides: Syringin, pregnane glycoside, palmatosides etc. | Dementia, immunomodulatory, anti-cancer |
| Diterpenoid Lactones: Tinosporon, columbin, Furanolactone etc. | Anti-inflammatory, anti-microbial, anti-viral, vaso relaxant |
| Steroids: Makinsteron A, β sitosterol, δ sitosterol etc. | I _g A neuropathy, cox-2 inhibitor, glucocorticoid induced osteoporosis |
| Giloin, giloinin, tinosporic acid etc. | Protease inhibitors for HIV |

Safety aspects of *Guduchi*:

Although extensive research work has been done on this herb and no toxicity is seen as such. The drug is safe for use in various dosage forms. *Guduchi* or *Giloy* is being widely used in therapeutics for a long time in AYUSH systems. The Ministry of Ayush issued the guideline after it noticed safety concerns on the use of *Guduchi* (*Tinospora cordifolia*) that appeared on some social media platforms and in some scientific journals. Its hepato-protective properties are also well established. However, similar looking plants such as *Tinospora crispa* may be harmful to human health. The ministry said; *Guduchi* is known for its immense therapeutic applications and the practices are regulated in accordance with various applicable provisions. It is observed that different species of *Tinospora* are available and only *Tinospora cordifolia* should be used in therapeutics, whereas similar looking species such as *Tinospora crispa* may

manifest adverse effects. Thus, it is reiterated that *Guduchi* is a safe and effective *Ayurvedic* medicine.

3. Conclusion

So this present review highlights the preventive, promotive and curative aspect of *Guduchi* from ayurvedic perspective which is now validated by evidence based studies. Ministry of ayush has also recommended that use of *Guduchi* and its formulations is totally safe. Global scenario is now changing towards the use of herbal natural products. *Guduchi* due to its countless medicinal properties, deserves a special attention towards its cultivation for easy availability and specific scientific researches to explore its practical clinical application.

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