



# A CONCISE ETHNO-PHARMACOLOGICAL REVIEW OF VRUDDHADARU, ARGYREIA SPECIOSA SWEET

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## Abstract:

*Vruddhadaru* (*Argyrea speciosa* Sweet) is medicinal herb from Convolvulaceae family. It has been described in *Nighantus* of Ayurvedic literature. *Vruddhadaru* has wide range of medicinal properties. In Ayurvedic literature it is mentioned that *Vruddhadaru* can be used as *Vrushya* (Aphrodisiac), *Vranaropak* (Wound healing), *Pramehaghna* (antidiabetics), in *Shoth* (Swelling), as *Medhya* (Nootropic) and as *Rasayan* dravya. Various pharmacological studies concluded that *Vruddhadaru* possess various properties like anti-inflammatory, anti-cancer, anti-convulsant, anti-diarrheal, anti-microbial, anti-stress, anti-ulcer, aphrodisiac, hepatoprotective, hypoglycemic, immuno-modulatory, nootropic, wound healing etc. It is commonly used by various tribes in India. Mainly leaves are used for wound healing. These various properties of *Vruddhadaru* indicates that it can be used as single drug therapy. This article reviews ethnic & pharmacological data of *Vruddhadaru* which may help for further pre-clinical, clinical trials.

**Key words-** *Vruddhadaru*, *Argyrea speciosa* Sweet, ethnic & pharmacological data.

## Introduction:

*Argyrea speciosa*, *Vruddhadaru* is one of the widely spreading creeper used by many ethnic groups. It belongs from Convolvulaceae family. In *Ayurveda* *Vruddhadaru* is mentioned in *Nighantu granthas* but not found in *Brihadatrayi* & *Laghutrayi*. For long, it has been used as tribal medicine. *Argyrea speciosa* is a perennial climbing vine native to the Indian Subcontinent & introduced to numerous areas worldwide, including Hawaii, Africa, and the Caribbean. Though it can be invasive, it is often prized for its aesthetic & medicinal values. This review includes collection of data of traditional uses of *Vruddhadaru* & its phytochemical constituents & experimental studies.

## Materials and methods:

Source of data- comprehensive review of books, journals and previous data

Computerized published and unpublished work related to *Vruddhadaru*

## SANSKRIT SYNONYMS [1]:

*Rksagandha*, *Rsyagandha*, *Chagalantri*, *Ajantri*, *Chagalantrika*, *Bastantri*, *Antrabasta*, *Avegi*, *Vrddhadarakah*, *Vayojadarika*, *Ajara*, *Jungah*, *Dirghavallari*, *Vrddhadaraka*, *Vrdhadarika*,

*Samudraphala*, *Samudraphalaka*, *Samudrasosha*, *Samudrapalaka*, *Chagantri*, *Vridhadaru*, *Vrshyagandhika*, *Antah Kotarapuspi*.

**BOTANICAL DISCRPTION:**

Extensively climbing, stems stout, leaves large ovate-cordate, acute, glabrous above, persistently white tomentose beneath, peduncles long, flowers sub-capitate, bracts large ovate-lanceolate, acute, thin softly woolly deciduous, corolla tube woolly. Fruit brown yellow, stout nearly dry.

**PARTS USED:**

Roots, leaves, flowers and seeds

**TRADITIONAL USES [2]:**

Lodhas use the dried root powder with country liquor (3:1) in the treatment of gonorrhoea and take the root powder with cow's milk (2:1) as cure for painful discharge of urine.

Santals apply abaxial side of the leaf on boils for suppuration.

Oraons use fresh leaf juice with *Karanja* (*Pongamia pinnata* Pierre) seed oil as cure for obesity and excessive accumulation of fat in the body.

Some other ethnic communities give the plant extract to syphilitic patients and apply young leaf paste on small pox and give root infusion with goat milk (3:1) to male patients in the treatment of sexual disorders.

In Lakhimpur, the tuber in the form of a paste is applied externally in abscess of stomach. The Palliyar tribes of Western Ghats, Tamil Nadu use roots for cure of gastrointestinal diseases.

Rajasthani tribes uses leaves to prevent constipation [3].

Kurichiya tribe (Kerala) use leaf, flower and root parts for treating the cough and rheumatoid arthritis.

Northern parts of India use young unfolded leaves for wound healing. (Experimentally showed the healing properties in Swiss albino mice)

Tribal communities (Mulashi, NWG) eat ripe fruit pulp as raw.

Rayalaseema region (SWG) use leaf and roots against Leucoderma.

Tribal communities (MB) use leaves against chronic ulcers.

Dhar district MP use as for vegetables.

Zou tribe (Manipur) use pods as vegetables or in chutneys.

Reang tribe (Tripura) use root paste in sprain.

Adilabad district (AP) use leaf paste against hydrocele in affected area[3].

**USES IN AYURVEDIC LITERATURE:**

Root is alterative and tonic; powdered root is given in milk in synovitis and syphilis.

Leaves are antiphlogistic and used in skin diseases. Under-surface of the leaf is irritant and is used to hasten maturation and suppuration. It sometimes acts as a vesicant. Upper-surface is cooling and supposed to possess healing qualities.

As an alterative and nervine tonic, powdered root is soaked seven times during seven days in the juice of the tubers of *Asparagus racemosus* and dried. The resulting powder is given in doses of a quarter to half a tola with clarified butter for about a month. It improves intellect, strengthens body and prevents effects of age.

Root of this plant forms an ingredient of a compound powder known as Ajmodadi Churna which is useful in rheumatic affections and hemiplegia [4].

*Vruddhadaru* mainly used as *Rasayan* (elixir/immunomodular), aphrodisiac. Used in rheumatoid arthritis, piles, inflammation, diabetes. Increases libido, quality of life, strength, intellect, appetite, lustre of skin [5].

Filaria- Powder of *Vruddhadaru* should be taken with sour gruel.

Eye diseases – Juice of *Vruddhadaru* mixed with honey should be used as eye drop in case of *Ophthalmia neonatorum*.

As *Rasayana* –

a) Powder of *Vruddhadaru* root is impregnated with Satavari juice seven times and dried. This powder mixed with ghee should be used for a month. It promotes Physical and mental strength.

b) *Vruddhadaru* root powder should be mixed with honey and ghee for a week keeping on diet of milk and rice. It acts as *Rasayana*.

In vatavyadhi –

a) One should take castor oil or Vruddhadaru with milk.

b) Vruddhadaru taken with wine, sour gruel, cow's urine, water, fatty substances, meat- soup and vegetable soups pacify aggravated Vata.

Urustambha – Powder of Vruddhadaru and Sunthi should be taken with hot water. It alleviates Urustambha.

As Aphrodisiac – Ghee cooked with Vruddhadaru root should be taken with milk. It is an excellent aphrodisiac and should be used by those desiring progeny[6].

### **PHYTOCHEMICAL CONSTITUENTS:**

Seeds -

The seeds of *Argyrea speciosa* yielded fatty oil, which was found to contain the glycosides of palmitic, oleic, stearic, behenic, linoleic and linolenic acid [7]. The ethanolic extract of the seeds revealed a mixture of three alkaloids, out of which only one was characterized as ergometrine. The other constituents isolated were caffeic acid and ethyl caffeate [8]. The presence of ergoline alkaloids was also reported by Nair et al [9]. The ergolines were reported to be of clavine type. The free amino acids reported in the seeds were glutamic acid, glycine, isoleucine, leucine, lysine, phenylalanine, tyrosine, praline and  $\alpha$ -aminobutyric acid [10]. The total crude protein found in the seeds was 30.6% while the albumin, globulin and glutelin contents were 10.4, 8.8 and 10.6% respectively. These findings suggested the use of seeds for edible purpose [11].

Fruits:

The fruits of *Argyrea speciosa* were reported to contain n-triacontanol,  $\beta$ -sitosterol, phydroxycinnamoyl octadecanolate and caffeic acid. [12]

Leaves -

The petroleum ether extract of the leaves of *Argyrea speciosa* yielded 1-triacontanol, epifriedelinol acetate, epifriedelinol and  $\beta$ -sitosterol[13]. The leaves were found to contain flavonoids, quercetin, kaempferol and kaempferol 3-O-L-rhamnopyranoside.[14]

Roots –

The hexane extract of the roots of *Argyrea speciosa* yielded tetradecanyl palmitate, 5,8 oxidotetracosan-10-one [15]. Two aryl esters characterized as stigmasteryl phydroxycinnamate and hexadecanyl p-hydroxycinnamate along with coumarin scopoletin were isolated from the root [16]. A coumarin glycoside named L-ester coumarin, 6-methoxy7-o-alpha-D-glu was also isolated from root [17].

### **EXPERIMENTAL STUDIES:**

#### **Sexual disorders**

In a clinical trial involving male patients suffering from common sexual disorders, 'Fortege', an indigenous drug that contains *A. speciosa* as one of the main ingredients was found beneficial in conditions like night emission, masturbation, erectile dysfunction, premature ejaculation, spermatorrhoea and functional impotence with no side effects [18].

#### **Anti-inflammatory and anti-arthritic**

It is used in the indigenous systems of medicine for the treatment of inflammatory conditions. The ethanolic extract of roots was found to significantly inhibit paw edema induced by carrageenan and Freud's complete adjuvant at doses of 50-200 mg/kg [19]. In another study, evaluated anti-inflammatory activity of 50% ethanolic extract of *A. speciosa* using Sprague-Dawley rats following oral administration in two different doses (100 and 200 mg/kg). Inflammation was induced using 1% carrageenan. The extract significantly showed anti-inflammatory activity at 3 hours [20].



**Antimicrobial and phytotoxicity**

The seed oil exhibited in vitro antibacterial and antifungal activity. It showed antiseptic activity against several Gram positive and Gram negative bacteria and phytopathogenic fungi [21].

**Immunomodulatory**

It significantly enhanced the production of circulating antibody titre in mice. Chronic administration of the ethanolic extract significantly ameliorated the total white blood cell count and also restored the myelosuppressive effects induced by cyclophosphamide.

**Nootropic**

Aqueous extract of roots at doses of 100 and 200 mg/kg significantly improved memory and successfully reversed amnesia induced by diazepam, scopolamine and natural aging and also reduced acetyl cholinesterase level in brain homogenate indicating its potential in attenuating learning and memory deficits especially in aged mice [22].

**Adaptogenic and antioxidant**

*A. speciosa* root were found to be capable of increasing the capacity to tolerate non-specific stress in experimental mice, as revealed by restoration of large number of parameters in the stress models studied. [23].

**Anticonvulsant**

The root is regarded as an alternative tonic and useful in the diseases of nervous system. To confirm the veracity of the claim, evaluated the anticonvulsant effect of the root extract. [24] The hydroalcoholic extract of *A. speciosa* roots at the dose of 200 and 400 mg/kg showed anticonvulsant effect in mice.

**Hepatoprotective**

Ethanol extract and ethyl acetate extract of *A. speciosa* roots at doses of 200 and 400 mg/kg showed strong hepatoprotective activity in CCl<sub>4</sub> induced hepatotoxicity in rats [25].

**Antifilarial**

The plant extract possesses antifilarial activity against *Setaria cervi* in vitro. Aqueous and alcoholic extracts caused the inhibition of spontaneous movements of the whole worm and the nerve/muscle preparation of *Setaria cervi*, characterized by decrease in tone, amplitude and rate of contractions. The concentration required to inhibit the movements of the whole worm preparation was 150 µg/ml for the aqueous and 75 µg/ml for the alcoholic extract [26]

**CONCLUSION:**

*Argyrea speciosa* is a commonly found medicinal herb in India. This review of *Vruddhadaru* can be helpful in further pre-clinical, clinical trials, analytical studies and toxicology studies.

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