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A REVIEW ON *GALINSOGA PARVIFLORA*

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ABSTRACT

Galinsoga parviflora an annual dicot species of the family Asteraceae, is a common herb that is often found in distributed habituates and agricultural areas in many parts of the temperate and subtropical regions of the world .It is a native of tropical America and its centre of origin is consider to be the mountainous area of Mesoamerica (Mexico and central America). These are erect and 20-80cm tall depending on growth conditions. It is self fertile plants; it contains various chemical constituents like Apigenin 7-beta-D-glucoside, Luteolin 7 –beta-D-glucopyranoside, Uracil, Fumeric acid, phytol, beta-sitosterol, stigmasterol, and 7-hydroxy-beta-sitosterol etc….and 48 volatile oils in various parts of the plant. It has significant activities like hepatoprotective effect, hypoglycemic effect, cytotoxic activity, antioxidant activity, antimicrobial activity. This review articles is a documented information on different aspects of *Galinsoga parviflora* pharmacological properties and highlights the need for research and their potential development.

KEYWORDS: *Galinsoga parviflora*, Asteraceae, chemical constituents, volatile oil, antioxidant activity, antimicrobial activity.

INTODUCTION

Galinsoga parviflora was brought from Peru to Kew gardens in 1796 and later escaped to the wild in Great Britain and Ireland being temporarily known as the "Kew Weed".[1] The plant named after the Spanish botanist "Ignacio Mariano Martinez de Galinsoga". The species name 'parviflora' translates to have small flowers. In Britain, its name Galinsoga is popularly rendered as "gallent soldiers". It is a cosmopolitan falls growing annual herb.[2] It is also known as tridax parviflora (gallent soldiers) originates from Central America. Medicinal values of this leaves extract and salt is given in fever, diarrhea and vomiting. We can use the leaves especially in plant seen above, stems and even the flowers in smoothie's salads, stews, steamed or juiced and mixed with other juices.[3] It is high in calcium, vitamins (beta –carotene, thiamin, riboflavin, niacin, and ascorbic acid), potassium, zinc and magnesium. Hepatoprotective effect, hypoglycemic effect, cytotoxic activity, antioxidant activity and antimicrobial activity.

Taxonomical Classification

Kingdom	Planate
Order	Asterales
Family	Asteraceae
Genus	Galinsoga
Species	Parviflora

Names in Differet Languages

Hindi Name : Gaddee chaimanthee

English Name : Gaddi chamanti
Telugu Name : Gaddi chamanti
Bengali Name : Gaddi cemanti
Tamil Name : Katti camanti
Malayalam Name: Mukuthipwovu

Fig. 1: *Galinsoga parviflora.*

Geographical Distribution
The species is native to South America; however it is widely naturalized in other countries. There are a few records of *Galinsoga parviflora* and *Galinsoga ciliate* in Northern Ireland. It has been naturalized elsewhere, including North America and Australia. It grows readily on sunny or shady fertile soil, uncultivated areas, wastelands and roadsides. In India *Galinsoga parviflora* are distributed in most Indian hill stations.[4]

Propogation
Galinsoga parviflora is an annual growing to 0.6m (2ft). It is in flowers from May to October. The species is hermaphrodite (has both male and female organs) and is pollinated by insects. The plant is self fertile. Suitable for light (sandy), medium (loamy) and heavy (clay) soil.

A prolific seeder, often producing several thousand per plant. It can complete a life cycle (germination to shedding of seeds) in a little as 50 days. Viable seeds may be produced when the plants is only a few cm high. These seeds may germinate readily after falling to the ground; however, germination may be retarded if the seed coat remains intact light as well as alternating temperatures of 10℃ -35℃ appear to be suitable for germination.

Galinsoga parviflora prdific reproduction and ease of "harvesting" make it a desirable "culinary crop".

As a weed, gallant soldier is different to eradicate because plants left on the ground after weeding may re-establish roots, Whereas undeveloped seeds will continue to ripe even under dry conditions. Fields can still be covered by gallant soldier because a single plant of 8-9 weeks old can produce over 7000 viable seeds and several generations are possible in each growing season[7]. The small, light weight fruits can be spread by the wind and the stiff pappus hairs cling to people's clothing or the fur of animals.

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Chemical Constituents
There are several chemical constituents in different parts of plant…

Leaves: Leaves contain Apigenin 7-beta-D-glucoside, Luteolin 7-beta-D-glucopyranoside.

Stems: Stems contain kaempferol, Quercetin, 3, 5,7,8,4-Pentahydroxy-3-methoxyflavone-3-O-alpha-L-rhamnopyranosyl-7-O-beta-D-glucopyranosyl-(1→4)-O-beta-D-xylopyranosida.

Aerial: 2,3(4,5)-dicaffeoyltraric acid, 2,4,5-tricaffeoylglucaric acid, 2,3,4,5-tetracaffeoylglucaric acid.

Whole plant: Galinsoside A, Galinsoside B, Galinosoate A, Galinosoate B, Galinosoate C, Uracil, Fumaric acid, Ursolic acid, Triacontanol, Phytol, Beta-sitosterol, Stigmasterol, Gallic acid, 4-hydroxy benzoic acid, beta sitosterol.[8]

Phytochemical Constituents
Phytoconstituents from Leaves*:* *Galinsoga parviflora* leaves showed significantly presence of glycosides, carbohydrates, terpenoids, saponins, phenols, tannins, quinines, cellulose.

Phytoconstituents From Flowers: Alkaloids, glycosides, carbohydrates, saponins, tannins, cellulose and steroids were found significantly presence in aqueous extract of *Galinsoga parviflora* flower. Quinines and phenols slightly were presence. Flavonoids, terpenes and terpenoids were absent.

Pharmacognestic Description
Leaves: Leaves are simple opposite, the lower leaves with petioles 2-15mm long, blade ovate (or) ovate-oblong, 1-6.5cm *0.5-4.5cm, margin shallowly serrate. Leaf blade oval to oblong with sharp apex.

Inflorescence: The inflorescence consists of typical compositae/Asteraceae composite flowers each 5-8mm across, borne on long ancillary peduncles. Inflorescence a terminal (or) axillary head, often in pairs, involucres bracts in 2 rows, glabrous, pales present, trified.

Flowers: Each flower/capitulum bears two types of flowers :Ligulate female, white flowers at the margin and tubular hermaphrodite yellow flowers in the central disc. These are ray flowers female, usually 5, white, with short ligule and marked tube, disk flowers tubular, yellow. The dispersal units are arehenes bearing pappus (or) parts of flower structures that can easily be transported by wind (or) animals.

Fruits: Fruits are an achene 1-2mm long, central achenes ovate, black, with pappus consisting of white fimbriate scales as long as the fruits, marginal achenes without pappus.

Seeds: Gallent soldiers are a shallow germinator (upto2cm; 0.78 inches).

Nutritional Qualities
You can use the leaves especially of young plants seen above, stem and even the flowers in smoothies, salads, stews, steamed or juiced and mixed with other juices. It is mild in flavor and can dried for winter use. In 100gms

of this plant there are 3.2gm protein and 1.1gm of fiber (compared to spinach which has 2.9gms protein and 2.6gms of fiber). It is high in calcium:284mg per 100gm (parsley 140mg).

Contains vitamin A (or) B-Carotene, Magnesium, Potassium, Zinc, Thiamin (B1), Riboflavin (B2), niacin (viyB3), Vitamin C as ascorbic acid. In 2007 study at the university of Kwazulu-Natal, Durban, South Africa, 16 herbs were studied for possible ACE inhibitors. ACE inhibitors, which are also made synthetically by drug companies to treat high blood pressure, help to prevent hypertension and cardiovascular diseases. One of the herbs found to exhibit ACE inhibitors so help to improve blood flow was *Galinsoga Parviflora*(or)guasces. Recent studies have also demonstrated the antioxidants and phenolic compounds present in guascas can inhibit high blood sugar levels or hyperglycemia and also hypertension associated with type- 2-diabetes.

Medicinal and Therapeutic Uses

- *Galinsoga parviflora* also has some medicinal uses as a tropical treatment for nettle stings.
- It also helps to prevent hypertension and cardiovascular diseases.
- The herb *Galinsoga parviflora* or guascas exhibit ACE inhibitors and help improve blood flow.
- The juice of the whole plant is applied to treat wounds. It helps to coagulate the blood of fresh cuts and wounds.
- The dried leaves are an essential flavoring for certain dishes.
- Used in the treatment of cold sores, common cold and flu, toothache, and eye diseases.
- Used as fodder for cattle.
- Humans also use it as a vegetable for preparing soups and salads.
- The roots provide effective remedy against beetle bites.
- In traditional medicine it is used in treatment of dermatological problems such as eczema and lichens.

CONCLUSION

It is concluded from this review that *Galinsoga parviflora* is unique source of metabolites such as carbohydrates, cellulose, starch, glycosides, tannis; alkaloids which are obtained from crude extract of various parts of parts of plants are reported to posse's antioxidant activity, antimicrobial activity, hepatoprotective effect, hypoglycemic effect, cytotoxic activity and offers promise for further investigations.

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