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Sphagneticola trilobata (L.) Pruski. - A Phytochemical Review

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Abstract
Phytochemical screening of the medicinal plants is having greater significance because the therapeutic utility of the medicinal plants mainly depends up on the presence of secondary metabolites present in them. The secondary metabolites may be present or accumulated in a particular plant part or distributed throughout the plant. It is always that part of the plant which contain maximum amount of secondary metabolite is designated as drug. The secondary metabolites can be separated from plant part through various techniques. In the present review, an attempt has been made to compile most of the reported active constituents of the plant which will be helpful for the researchers.

Keywords: *Sphagneticola trilobata*, Phytochemical

Introduction
Sphagneticola trilobata (Asteraceae) commonly known as “Singapore Daisy”, is a creeping, perennial herb, growing up to 30 cm tall and 2-3 m long. The plant is having ornamental and many medicinal values. The plant is also known as *Wedelia trilobata*. The following are the some of the major reported active constituents from the plant.

Fig. 1: *Sphagneticola trilobata* (L.) Pruski

Qualitative phytochemical screening of *Sphagneticola trilobata* (L.) Pruski. studied with solvents like ethanol, petroleum ether, chloroform and distilled water were used to obtain

extracts from powdered leaves, stem and roots. From the phytochemical screening it was observed that of the thirteen phytochemicals screened, ten were found present in various solvent extracts. They were alkaloids, flavonoids, saponins, terpenoids, steroids, glycosides, tannins, proteins, aminoacids and carbohydrates. Maximum amount of phytochemicals were found present in ethanolic extract and quinones, phlobatannins and oxalates were absent in all extracts from different parts of the plant [1].

A comparative phytochemical study was conducted for *Wedelia trilobata*, *Achyranthes aspera* and *Chrysanthemum*. The secondary metabolites like Cardiac glycosides, steroids, Alkaloids, Flavonoids, Terpenoids, Tannins and Saponins were obtained from different flower extracts. The methanolic flower extracts of three of the plants were found to have the rich sources of phytoactive compounds as compared to the chloroformic flower extract. Cardiac glycosides were richly present in the flower extracts of *Wedelia trilobata*, and *Chrysanthemum*. Flavonoids, Tannins, Terpenoids and Alkaloids were present in bulk in *Chrysanthemum* flower extract [2].

A phytochemical study was conducted on the ethanolic extract of the aerial parts of *S.Trilobata* showed the presence of flavonoids and steroids [3].
Surveys of literature revealed that tannin, saponins, flavonoids, phenol, terpenoids constitute major classes of phytoconstituents of *Sphagneticola trilobata* (L.) Pruski. The reported pharmacological activities of this plant like antioxidant, analgesic, anti-inflammatory, antimicrobial, wound healing, larvicidal, trypanocidal, uterine contraction, antitumor, hepatoprotective, and in the treatment of diabetes, menstrual pain and reproductive problems in women etc. could be due to the presence of above said constituents [4].

A phytochemical study was conducted on the aqueous extract of the aerial parts of the *S. Trilobata* .revealed the presence of glycosides, steroids, flavonoids, terpenoids and polyacetylenes [5].

A study was conducted to perform phytochemical analysis and to test the antimicrobial activity of the crude hydroalcoholic extract obtained from the leaves of *Sphagneticola trilobata*. The secondary metabolites present in the extract were identified through phytochemical screening using analytical thin-layer chromatography. In the phytochemical screening, classes of anthracenic derivatives and mono-, sesqui-, and diterpenes were identified. Colorimetric analysis showed total phenol and total flavonoid contents of 21.7 ± 0.009 mg of gallic acid equivalents per gram of sample and 0.23 ± 0.005 mg of catechin equivalents per gram of sample, respectively [6].

A phytochemical study was conducted on the aqueous extract of the leaves and stems of *S.Trilobata* revealed the presence of arachidonic acid, luteolin and eudesmanolide lactone[7].

Wedelia is an interesting source of potential bioactive molecules, as iridoids compounds, flavonoids, diterpenoids derivatives, phytosteroids, with antioxidant, anti-inflammatory, antimicrobial potential [8].

The phytochemical screening showed the presence of flavonoids, tannins, phenols, saponins, steroids, carbohydrates and glycosides. Physicochemical parameters such as moisture content, ash value, extractive value and fluorescent behavior of root powder were also evaluated which are considered to be useful tools to differentiate the powdered drug material [9].

Phytochemical screening of the leaf extract of *Wedelia Trilobata* showed the presence of alkaloids, terpenoids, saponin, tannins, and flavonoids. But glycosides, reducing sugars and steroids were absent[10].
The methanolic extract of the leaves of *S.Trilobata* shows the presence of terpenes [11].

The volatile oil from the aerial parts of *S. trilobata* was isolated by hydrodistillation method and analysed using capillary gas chromatography–flame ionization detector (GC–FID) and GC–mass spectrometry (GC–MS) during different seasons. Volatile oil yield varied from 0.18 to 0.25% in different seasons. The maximum yield of volatile oil was observed during the winter season. Major constituents of the oils were α-pinene (78.6–83.3%), α-phellandrene (1.3–4.1%), sabinene (1.4–1.9%), limonene (1.2–1.9%), β-pinene (1.0–1.6%), camphene (0.7–2.0%), 10-nor-calamenen-10-one (<0.05–1.5%), germacrene D (0.1–1.4%) and γ-amorphene (<0.05–1.3%) [12].

Essential oils like alpha pinene, alpha phellandrene, and limonene are obtained from the leaves of *S.Trilobata* are analysed by gas chromatographic and mass spectroscopic techniques [13].

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