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Preliminary phytochemical and biochemical studies of *Cissus quadrangularis,* Linn. (Family-Vitaceae)

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Abstract
Plants have a great potential for producing new drugs for human benefits. Plants are used in trational medicine contain a vast array of substances to treat chronic and even infection diseases. According to report of world health organization more than 80 percentage populations depends on traditional medicine for their primary health care needs. The demand drugs from plant sources in continuously increasing. Therefore it is essential for systematic evaluation of plants used in traditional medicine for various ailments. The present study of phytochemical and biochemical analysis of methanol stem extract of *Cissus quadrangularis*, Linn; the aim is to reveal the presence of phenols, proteins, tannins, flavanoids, anthraquinone and starch.

Keywords: *Cissus quadrangularis*, phytochemical, biochemical activities

Introduction
Medicinal plants and herbs have been proved to be of great importance to the health of the individuals and communities. In recent years, many scientific investigations of traditional herbal remedies for several diseases have been carried out and this has lead in the development of alternative drug and therapeutic strategy. Since the consumption of medicinal plants is increasing, it is interesting to use these plants as a supplement in food taking into account that these plants can present a significant amount of trace elements other nutrient. In recent years, antimicrobial derived from the plant have been receiving increasing attention, as Synthetic antibiotics have show ineffectiveness against several pathogenic organisms, due to Increasing drug resistant hence, researchers show interest in identifying the plants that used In traditional remedy and evaluating their beneficial activities. In the recent times, valuable scientific support has been given in order to authenticate the plant in disease treatment and also to detect the mechanism of action of compounds present in the plants. The plant is used in healing fractured bones. It also acts as an antimicrobial, antihelminthics, and antiulcer.

Fig 1: Location Map

Materials and Methods
Study Area - (Fig - 1&2)
Tamil Nadu is one of the 28 states in India. Its capital is Chennai (Formerly known as Madras) the largest city. Tamil Nadu lies in the southern most part of the Indian peninsula and is bordered by the union territory of Puducherry and the states of Kerala, Karnataka and Andhra Pradesh. Coimbatore is the city in Tamil Nadu, South India. It is the capital city kongunadu region and is often been referred to as the Manchester of South India.

Collection of the sample
The selected sample *Cissus quadrangularis* stems, were collected from Coimbatore at Ondipudur area. The collected stems are washed in running water and distilled water. The stems are spread on news paper to remove the excess water. Then the stems are shade dried and stored in air tight container for further analysis.

Fig 2: Study Area

Fig 3: Habit of *Cissus quadrangularis*

Systematic position

Division	:	Angiosperms
Class	:	Dicotyledoneae
Subclass	:	Rosidae
Order	:	Rannales
Family	:	Vitaceae
Genus	:	*Cissus*
Species	:	*C. quadrangularis*, Linn;

Cissus quadrangularis, Linn; is commonly known as a succulent plant and bone setter. The plant is found throughout the hotter parts of India alongside hedges, neighboring countries like Pakistan Bangladesh Srilanka and Malaysia. The plant material occurs as pieces of varying lengths, 4-winged, internodes 4-15 cm long and 1-2 cm thick. The surface is smooth, glabrous, buff colored with greenish tinge, angular portion reddish-brown; no taste and colour. The leaves are simple 2.5-5 cm long, broadly ovate or reniform, cordate, Petioles 6-12 mm long; stipules small broadly ovate, obtuse. Leaves and young shoots are powerful alternatives. Flowers are shortly peduncle cymes with spreading umbellate branches. In Ayurveda, the plant has been documented for its medicinal used in gout, syphilis, venereal diseases, piles leucorrhoea. The properties from the extract have been investigated such as the antibacterial activity, antioxidant activity, antiulcer activity, analgesic and anti-inflammatory, anti osteoporotic proteolytic, mutagenetic and genotoxic activity. Calyx is cup shaped, truncate or very obscurely lobed. Petals are 4, ovate-oblong, short, stout. Berry is bovid or globes, scarcely 6mm, long peculate, red when ripe. The roots and stems are useful for healing of fracture of the bones. the stem is bitter, it is given internally and applied topically in broken bones, used in complaints of the back and spine.

Sterilization of the selected sample

The diseased free stems are selected for this investigation. Then the stems are washed with running tap water and sterilized with 0.1 percentage mercuric chloride and alcohol for few seconds. Again the materials were washed thoroughly with distilled water.

Preparation of the methanolic leaf extract

The collected plants made by cutting in to small pieces and shade dried also placed in an oven to dry at 50ºC. Then it is powdered with the help of pulverizer air dried. The powder is stored in air tight container to use for further studies. 30 gm of this powder is extracted with 375 ml of methanol under soxhlet apparatus for 25 hrs. The collected extract was used for further analysis.

Preliminary phytochemical analysis

The phytochemical screening of ethanol extract of *Euphorbia hirta* were analyzed by standard methods and shown various phytochemical constituents such as saponins, phenols, alkaloids, proteins, tannins, flavonoids, carbohydrates and terpenoids.

Biochemical analysis

The biochemical analysis of Carbohydrate and Starch were analyzed by Anthrone method.

Protein estimation were analyzed by Lowry's method.

Results and Discussion

The study is done in the phytochemical screening, biochemical and antibacterial activity of methanolic extract of *Cissus quadrangularis* stem. Plants are composed entirely of chemicals of various kinds. The phytochemical studies on methanol extract revealed the presences of phenols, tannins, carotene and vitamins has been reported from *Cissus quadrangularis* (Deka D K *et al.*, 1994) [7].

Table 1: Qualitative analysis of phytochemical Present in the methanolic stem extract

S. No	Phytochemical	Methanol solvent
1.	Saponins	+
2.	Phenols	+
3	Alkaloids	+
4.	Protein	+
5.	Tannins	+
6.	Flavanoids	-
7.	Carbohydrate	+
8.	Anthraquinone	-
9.	Terpenoids	+
10.	Glycosides	+

(++ indicates strongly present +, Indicates moderately present, – indicates absent)

The phytochemical compounds are saponins, alkaloids, protein, tannins, phenols, carbohydrates, terphinoids, and glycosides are highly present in methanolic stem extracts.

Table 2: Carbohydrate, Starch and Protein content Present in the methanolic stem extract.

Sample	Carbohydrate	Starch	Protein
Powdered sample	54mg	27mg	3mg

Cissus quadrangularis which serve as famine food contains. The biochemical compounds such as carbohydrates, starch and protein are moderately present (Table-2).

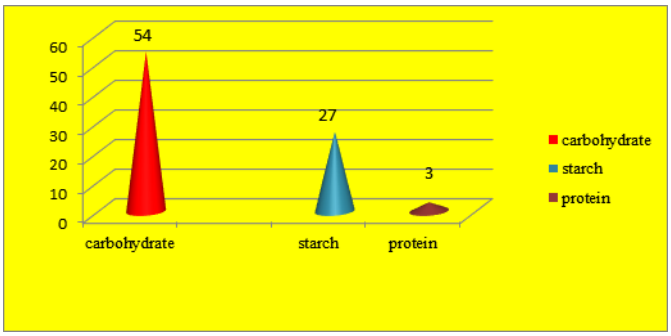

Fig 4: Carbohydrate, Starch, and Protein content present in the methanol stem extract.

The chart indicates the presence of carbohydrate, starch and protein content is present in methanolic stem extract. The phytochemical compounds are saponins, alkaloids, protein, tannins, phenols, carbohydrates, terphinoids, and glycosides are highly present in methanolic stem extracts (Table 1). *Cissus quadrangularis* which serve as famine food contains carbohydrates, starch and protein in adequate amount (Table-2).

The stem of *Cissus quadrangularis* were powdered and extracted with the Methanolic solvent. The extracts were subjected to preliminary Phytochemical and biochemical using standard method. It will be useful for scientific information establish the medicinal values. Hence, there is a need for screening of the plant, which may helpful for the pharmacologists and discovering innumerable therapeutic agents because the presents of this rich medicinal properties. It is to improve our quality of life; diseased free life and the role of medicinal plant for various disorders.

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