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## Phytochemical screening of ethanolic extract of *Cissus quadrangularis*

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### Abstract

Ancient ages for the treatment and prevention of diseases plants have served human beings as a natural source of treatments and therapies, because of its phyto constituents useful for cure various diseases. *Cissus quadrangularis* a medicinal plant indigenous to Asia and Africa. Used by common man in India for promotion of fracture healing. Preliminary screening, florescence analysis, TLC has been widely used for phytochemical evaluation and qualitative identification on extracts. Hence, it has been developed in the present work for the quantification of various active constituents present on it's stem extract.

**Keywords:** *Cissus quadrangularis*, flavonoids, saponin, glycoside, alkaloid

### Introduction

Previously the herbalists used some traditional medicine for healing the wounds, however the times taken for healing were more seeing this a number of more advanced medicines appeared which took some what lesser times in healing despite the progress in conventional, pharmacognosy, chemistry, and pharmacology in producing effective drugs. Some new effective medicines appeared as chemical compound for the development as pharma-ceutical entities or, alternatively, as simple dietary adjuncts to existing therapies <sup>[1, 2]</sup>.

One of these is a *Cissus quadrangularis* Linn (CQ) is a medicinal herb considered to be of beneficial effect in the traditional system of medicine. The CQ is commonly called as "Hadjod". It is also known as *Vitis quadrangularis* Wall. Which belongs to family *Vitaceae*. is one of the most widely used ingredients in alternative medicine (Ayurveda) for the treatment of piles, anorexia, indigestion, chronic ulcers, asthma, otorrhoea, wounds and in augmenting fracture healing process <sup>[3, 4, 5]</sup>. They are often used as medicinal plants because they contain some bioactive compounds such as flavanoids, triterpenoids, Vitamin C, stilbene derivatives and many others, e.g. resveratrol, piceatannol, pallidol perthenocissin and phytosterols, ascorbic acid, triterpene,  $\beta$ -sitosterol, ketosteroid, two asymmetrical tetracyclic triterpenoids Carotene A, anabolic steroidal substances and calcium were identified as major constituents of this plant <sup>[6, 7, 8]</sup>.

### Material and method

The stem of plant *Cissus quadrangularis*, purchased from local market of Jabalpur, were identified and authenticated by Dr. AB Tiwari, Professor and Head, Department of crop and herbal physiology, JNKVV, Jabalpur (M.P.). *C. quadrangularis* were collected in the month of November and dried in shade. *C. quadrangularis* were coarsely powdered and used for preparation of extract.

### Preparation of extracts

The powder of *Cissus quadrangularis* was subjected to successive solvent extraction using sohxlet apparatus the powder was extracted with ethanol extract was filtered through No. 4 whatman filter paper extract was then evaporated at 40.C to dryness, and stored at 40.C for further use. Extract was sticky in nature, green in colour and percentage yield was 5.6 w/w gm.

### Results

The Preliminary TLC studies showed the presence of flavonoids, glycosides and alkaloids in the extract and were tested using standard procedures. The  $R_f$  value of the different compounds present in the extract was found to be 0.81, 0.72, 0.69 respectively (table iii), which showed

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the presence of alkaloids, flavonoids, glycosides compounds. The extracts were screened with the help of various chemical tests (table i) and that gave positive results for the presence of alkaloids, glycosides, flavonoid, saponins, carbohydrates,

tannins and amino acid. Fluorescence parameters of *Cissus quadrangularis* powder were noted both under ultra violet light and normal ordinary light, which signified their characteristics.

**Table 1:** Photochemical Analysis of the Ethanolic Extract of *Cissus quadrangularis*.

S. No	Tests for Phytoconstituents	Ethanol Extract
1.	Alkaloids, Dragendroff's test Hagers test	+
2.	Glycosides Zinc HCl test Alkaline test	+
3.	Carbohydrates Salvino's test Molish test	+
4.	Saponins Foam test	+
5.	Flavonoids Zinc HCl test Alkaline test	+
6.	Protein Heat test Biuret test	+
7.	Tannins Aq. FeCl <sub>3</sub> Gelatin test	+
8.	Amino acids Millons test	+

**Table 2:** Fluorescence Analysis of *Cissus quadrangularis* (stem).

Treatment	Observation under		
	Ordinary light	UV light	
		254 nm	366nm
Powder as such	Green	Green	Green
Powder + Nitrocellulose	Green	Dark Green	Green
Powder + 1N NaOH in methanol	Green	Dark Green	Dark Green
Powder + 1N NaOH in methanol + Nitrocellulose in amyl acetate	Green	Dark Green	Brown Green
Powder + 1N HCl	Green	Dark Green	Brown
Powder + 1N HCl + Nitrocellulose in amyl acetate	Green	Green	Brown
Powder + 1N NaOH in water	Green	Light Blackish	Brownish Green
Powder + HNO <sub>3</sub> (1:1)	Reddish	Black	Black
Powder + H <sub>2</sub> SO <sub>4</sub> (1:1)	Black brown	Black	Black

**Table 3:** Chromatographic result of *Cissus quadrangularis* L. (stem) Plant extract.

S. No.	Solvent	Detector	Observation	R <sub>f</sub>	Possible Phytoconstituent
1.	Chloroform : Methanol (95:5)	Vanillin sulphuric acid	Orange , Red	0.81	Glycosides
2.	Chloroform : Acetone : Formic acid (90:7:3)	Dragendorff's reagent	Red	0.72	Alkaloids
3.	Acetone : water : Con. Ammonia (75:16.5:8.5)	NP/PEG and UV	Yellow	0.69	Flavonoids

## Discussion

The pharmacological activity of any plant is useful due to presence of chemical constituents. Preliminary qualitative chemical tests of extract show positive results for Alkaloid, flavonoids, triterpenoids, carbohydrates, tannins, protein, Flavonoids and glycoside are the active constituents in stem and they are better extracted out by ethanol extract, having a high % yield of *Cissus quadrangularis* and may be responsible for its pharmacological activities. The conclusion of the study could be useful in setting some diagnostic indices for the identification and preparation of a monograph of the plant. Which could make it useful for treating different ailments and having a potential of providing useful drugs of human use. However more Clinical and Pathological studies should be conducted to investigate the active potentials of bioactive compounds present in this plant<sup>[9, 10]</sup>.

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