

DETERMINATION OF EXTRACTIVE VALUE OF *CISSUS QUADRANGULARIS* L. [A POTENT BONE HEALER] WITH DIFFERENT SOLVENTS

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Cissus quadrangularis L. (Vitaceae) is extensively used in healing of fractured bones. Active principles present in it help in early regeneration of bone callus. Extraction of *Cissus quadrangularis* L. (Hadjod) has been made in soxhlet apparatus with different solvents i.e. petroleum ether, chloroform, benzene, ethyl acetate and ethyl alcohol by taking known quantity of drug. The extract was filtered and the solvent was evaporated, accurate weight of the extract was taken. The percentage (%) was calculated with reference to air dried drug. Extractive value was higher when extraction was done with Benzene and lower with Ethyl alcohol i.e. 26.095% and 2.85% respectively.

Keywords : *Cissus quadrangularis* L.; Extractive value; Solvents; Soxhlet apparatus.

Medicinal plants are being used in prevention and cure of disease and for promotion of health. The medicinal value of a plant is due to the presence of some chemical substances in the plant tissue that produce definite physiological action on human body. Ayurveda is much popular among Indians as the medicines of this system not only provide cure of diseases but are also safe and free from side effects. Again popularity of Ayurvedic and Unani system has grown in the west due to serious side effects of modern allopathic drugs. Drugs used today are either obtained from nature or are of synthetic origin.

Among the medicinal plants of India, *Cissus*

quadrangularis L. is an important medicinal plant belonging to family Vitaceae. This plant species is commonly known as Asthisanhara, Asthisrinkhala, Vajravalli, Hadjod etc. It is extensively used in healing of fractured bones as its name Hadjod indicates. Plant contains anabolic steroidal substances, Calcium, Ascorbic acid etc. These active principles help in early regeneration of bone callus. *Cissus quadrangularis* is shown to neutralize the anti-anabolic effect of steroids like cortisone in healing of fractures.

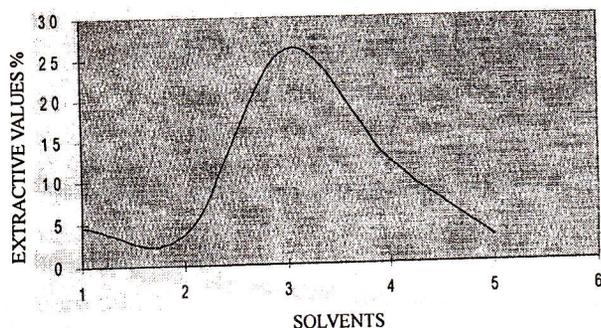
Present study has been made to study the extractive value of *Cissus quadrangularis* L. with different solvents. Extraction with different solvents have been done

Table 1. Extractive value of *Cissus quadrangularis* L. in different solvents.

S. No.	Petroleum Ether%	Chloroform%	Benzene %	Ethyl Acetate%	Ethyl Alcohol%
1.	4.32	3.78	25.22	10.76	2.10
2.	4.50	3.44	25.70	12.22	2.11
3.	4.46	3.56	25.98	12.08	3.09
4.	4.56	3.42	26.28	12.52	3.16
5.	4.56	3.58	26.28	12.33	3.16
6.	4.56	3.54	26.44	12.42	3.01
7.	4.62	3.58	26.50	12.42	3.11
8.	4.58	3.42	26.36	12.12	3.08
Mean	4.52	3.54	26.095	12.10	2.85
± S.E.	0.07	0.03	0.14	0.18	0.15
S.D.	0.20	0.11	0.41	0.52	0.43

S.E. = Standard Error

S.D. = Standard Deviation



1 = Petroleum ether; 2 = Chloroform; 3 = Benzene;
4 = Ethyl acetate; 5 = Ethyl alcohol.

Fig.1. Extractive values of *Cissus quadrangularis* L. in different solvents.

by many workers¹⁻³.

The plant material of *Cissus quadrangularis* was collected and gently washed to remove all the soil particles. The material was kept on blotting paper and left for air drying. The dried material was powdered and the known quantity of drug was extracted. Extraction was done in Soxhlet apparatus with different solvents i.e. petroleum ether, chloroform, benzene, ethyl acetate and ethyl alcohol. The extract was filtered, the solvent was evaporated and accurate weight of the extract was taken. The percentage (%) was calculated with reference to air dried drug.

Results are presented in Table 1 and Fig. 1. It is clear that the extractive value was highest when extraction was done with Benzene and lowest with ethyl alcohol i.e. 26.095% and 2.85% respectively.

Several workers have isolated medicinally important ingredients such as niazinin A, niazinin B, niazimicin and niaziminin A & B from the ethanolic extract of fresh leaves of *Moringa oleifera*⁹. Stuppner *et al.*¹⁰ isolated two new iridoid glycosides from the leaves of *Nyctanthes arbor tristis*.

The present study in *Cissus quadrangularis* L. is significant because by knowing the extractive value of *Cissus quadrangularis* L. with different solvents, isolation and quantification of chemical substances found in plant species can be easily carried out with the solvent of higher extractive values.

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