**INTRODUCTION**

Nature has provided a complete storehouse of remedies to cure all ailments of mankind. This is where, nature provides us drugs in the form of herbs, plants and algae's to cure the incurable diseases without any toxic effect. *Cissus quadrangularis* L. (Hadjod) belongs to vitaceae family is an indigenous medicinal plant of India. It has been prescribed in ancient Ayurvedic texts by Bhava Prakash and Chakra Dutta as a general tonic especially for the fractured patient. The stem of *Cissus quadrangularis* L. is also reputed in Ayurveda as alterative, anthelmintic, dyspeptic, digestive, tonic, analgesic in eye and ear diseases, in the treatment of irregular menstruation and asthma, and in complaints of the back and spine. The plant also exhibit cardio tonic property. In present study there are various test reveals the presence of Alkaloids, Carbohydrates, Glycosides, Tannins – phenolic compounds, Protein and amino acids, Gum and mucilage, Flavones and flavonoids, Saponins, Steroids and sterols, in the various types of extract as Petroleum ether extract, Chloroform extract, Ethyl Acetate Extract, n-Butanol. Preliminary qualitative chemical tests of extracts were found positive results for Phytosterol, flavonoids and triterpenoids in Ethyl acetate fraction, Hydro alcoholic fraction was positive to carbohydrate, tannin and amino acid and vitamin C. Flavonoids and triterpenoids are the active constituents in stem of *Cissus quadrangularis* L. and may be responsible for its pharmacological activities. The results of the study could be useful in setting some diagnostic indices for the identification and preparation of a monograph of the plant.

**Key words:** *Cissus quadrangularis* L., flavones, fluorescence, saponins, alkaloids.
Onocer-7-ene-3b-21a diol & Onocer-7ene 3a, 2,1 diol.2, 3, 4The present research focuses on the extraction as well as evaluation of the different phytochemical present in this.

**MATERIAL AND METHODS**

**Collection of the plant**

The plant was collected from MFP park (SANJEEVANI) Barkheda Pathani, Bhopal India.

**Drying and size reduction**

After identification and authentication stems were subjected to drying in normal environmental condition under shade with some change in temperature in oven. The dried stems were powdered by pulverization and were stored in air tight container

**Fluorescence Characteristic of the Different Extracts of the Stems of Cissus quadrangularis L.**

The fluorescence characteristic of different extracts was studied by observing them under UV Light at 365nm. The tests and observations are recorded in the table below.

**Extraction**

The dried powdered plant material is generally used for extraction. The fresh plant parts when used are homogenized or macerated with a solvent such as alcohol or water. Several plant constituents including chlorophyll and resins are generally interfering in the isolation process. The precise mode of extraction naturally depends on the texture and water content of the plant material. A water immiscible solvent such as petroleum ether is used for the separation of alkaloids and quinines. Extraction itself may be performed by repeated maceration with agitation percolation or by continuous extraction by soxhlet extraction.

**Extraction by fractionation**

Procedure is explained in detail with the help of fig.1.

**Petroleum Ether (60°- 80°)**

Extract ~about 1.5 kg of shade dried powder of stems of *Cissus quadrangularis* L. was extracted with petroleum ether (60°- 80°) for 24 hrs by Using soxhlet apparatus. After completion of extraction the solvent was removed under reduced pressure and the extractive was determined.5

**Methanolic Extract**

The marc left after petroleum ether extraction was dried and extracted with methanol for 24hrs. After completion of extraction, the solvent was removed under reduced pressure and the extractive value was determined. The crude methanol extract, after removal of the solvent, was dissolved in 10% sulfuric acid solution and partitioned with chloroform, ethyl acetate and n-butanol successively to give chloroform, Ethyl acetate, n-Butanol and water soluble fractions respectively.

Different extracts obtained from the above extraction processes and this extract were analyzed for different phyto constituents present in these by the method of qualitative phytochemical analysis. The following chemical tests were carried out and the results were tabulated. In this test for carbohydrates, alkaloids, glycosides, gums and mucilage, proteins and amino acids, tannins and saponins, phenolic compounds, steroids and sterols, triterpenoids, were carried out result are displaced in table 2.

**Phytochemical investigation**

Preliminary phytochemical screening of *Cissus quadrangularis* L.

Test for carbohydrates, gums and mucilage, proteins and amino acids, alkaloids, glycosides, phytosterols, carbohydrate, flavonoids, tannin and phenolic compounds, steroids and sterol, saponins were carried out. Results are displaced in table 2

Air dried powdered whole plant of *Cissus quadrangularis* Linn. Was exhaustively extracted with various solvents like n-hexane, chloroform, ethyl acetate, ethanol and methanol using soxhlet apparatus. Aqueous extract was obtained by maceration. These extracts were dried and dissolved in water. The dissolution was facilitated by sufficient quantity of Dimethyl sulphoxide (DMSO). As the principal active constituents of the plant are
saponins, phytosterols and phenolic compounds, which are polar in nature, so extracted best in the solvent of the highest polarity along with other polar constituents.

**RESULTS AND DISCUSSION**

The petroleum ether extract, methanol extract, chloroform extract, ethyl acetate extract and n-Butanol extract were tested to the UV Light at 365nm to study the fluorescence characteristic of the Cissus quadrangularis L. the showed no fluorescence with pet ether extract and methanol extract and ethyl acetate extract, but we have observed the light orange colour with chloroform extract and light yellowish orange with n-Butanol Extract.

The quantitative chemical test reveals the absence off carbohydrate; very less amount of gum and mucilage, alkaloids were reported in pet ether, alcohol and ethyl acetate, but it is not reported in Butanol extract. Protein and amino acids are found in all different types of extract, flavonoids, and flavons were reported absent in pet ether extract. Tannin & phenolic compounds were not reported in ethyl acetate extract, saponins were found in pet ether extract.. The active constituents like phytosterols, flavonoids and triterpenoids of stem of *Cissus quadrangularis* are responsible for pharmacological activities. The aim of the specific targeting is to enhance the efficiency of drug delivery and at the same time to reduce the toxicity and side effects. A number of novel drug delivery systems have emerged encompassing various routes of administration, to achieve controlled and targeted drug delivery.

<table>
<thead>
<tr>
<th>Extracts</th>
<th>Fluorescence under UV light (365nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum Ether Extract (60°C-80°C)</td>
<td>No Fluorescence</td>
</tr>
<tr>
<td>Methanol Extract</td>
<td>No Fluorescence</td>
</tr>
<tr>
<td>Chloroform Extract</td>
<td>Light Orange</td>
</tr>
<tr>
<td>Ethyl Acetate Extract</td>
<td>No Fluorescence</td>
</tr>
<tr>
<td>n-Butanol Extract</td>
<td>Light yellowish orange</td>
</tr>
</tbody>
</table>

**Table 2:** Preliminary phytochemical tests for identification of phytoconstituents in *Cissus quadrangularis* L.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Test for</th>
<th>Petroleum ether extract</th>
<th>Chloroform extract</th>
<th>Ethyl acetate extract</th>
<th>Butanol extract</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alkaloids</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Carbohydrate</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Glycosides</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>4</td>
<td>Tannin-phenolic compounds</td>
<td>++</td>
<td>++</td>
<td>-</td>
<td>++</td>
</tr>
<tr>
<td>5</td>
<td>Protein and amino acid</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>6</td>
<td>Gum and mucilage</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Flavones and flavonoids</td>
<td>-</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>8</td>
<td>Saponins</td>
<td>+</td>
<td>—</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>9</td>
<td>Steroids and sterols</td>
<td>++</td>
<td>+</td>
<td>-</td>
<td>++</td>
</tr>
</tbody>
</table>
Powdered plant material 700 gm

Extraction with pet ether (60-80°C)

Marc

Pet ether

After drying extracted with methanol

Methanol extract

Marc

Evaporated to dryness 23 gm

Dissolved in 10% sulphuric acid

Solution of methanolic extract with 10% sulphuric acid

Fraction was done by using equal volume of chloroform and than chloroform fraction was separated

Chloroform fraction was evaporated to dryness (3 gm)

Aqueous fraction

Fraction was done by using equal volume of ethyl acetate fraction was separated

Ethyl acetate fraction was evaporated to dryness yield (8.3 gm)

Aqueous fraction

Aqueous fraction

Cont.

Fractionation was done by using equal volume of n-butanol and than n-butanol fraction was separated from aq. fraction.
REFERENCES