



ISSN 2320-3862  
JMPS 2015; 3(5): 141-143  
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Received: 12-07-2015  
Accepted: 16-08-2015

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## Comparative study of pet ether extracts of all parts of *C. paniculatus* Wild

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### Abstract

Large populations are using the medicinal plants for various diseases. Such treatments are provided mostly by local healers. The major problem is the identification of plants, because in the same genus large numbers of species are present and these species are very similar with little morphological difference. One of these includes the plant *C. paniculatus*, known for the centuries as "Elixir of life" as it is used in curing many diseases. But as this plant is having six different varieties which are equally medicinally important, therefore, pharmacognostic study has great importance for the identification of plants arative study of pet ether extract of all plant parts are studied and analysis is carried especially in the same genus <sup>[1]</sup>. It consists of basic or preliminary analysis to find out active constituents. In this paper compt.

**Keywords:** Comparative study, pet *C. paniculatus* Wild

### Introduction

Medicinal plant species include a variety of life-forms ranging from lichens, algae, ferns, herbs, shrubs, climbers and trees, annuals to perennials. The bulk of these plants with their intraspecific variation represent a chemical and medicinal goldmine as is evident from the strong traditions of natural drug use. One of these includes the plant *C. paniculatus*, known for the centuries as "Elixir of life". It is considered in Ayurveda to stimulate 'medha' (intellect) and promotes 'smruti' (memory) and so Ayurveda recognizes it as 'Jyotishmati'. According to Ayurveda, depending upon the dose regimen, *C. paniculatus* may be employed as stimulant nerve tonic, rejuvenant, sedative, tranquilizer and diuretic. It is also used in the treatment of rheumatism, gout <sup>[2]</sup> leprosy, leucoderma, paralysis and asthma <sup>[3]</sup>.

Large populations are using the medicinal plants for various diseases. Such treatments are provided mostly by local healers. The major problem is the identification of plants, because in the same genus large numbers of species are present and these species are very similar with little morphological difference. Therefore, pharmacognostic study has great importance for the identification of plants especially in the same genus <sup>[1]</sup>. In this paper comparative study of pet ether extract of all plant parts are studied and analysis is carried out.



**Fig:** *Celastrus paniculatus* seeds and flowers.

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**Material and Methods****Collection and authentication**

The plant material of *C. paniculatus* was collected from the forest areas of 3 different localities i.e. Satara, Murbad and Kokan in month of August to October when it is flowering and fruiting. Care was taken to select healthy, full grown plants and normal organs. The plant was authenticated from Blatter Herbarium, Department of Botany, St. Xavier's College, Mumbai. (Specimen Accession No.1235 of H. Satapau). The voucher specimen of the plant is deposited at Research laboratory, Dept. of Botany, K.V. Pendharkar College, Dombivli (E) for further reference.

**Preliminary phytochemical analysis**

Phytochemical investigation involves the 2 main steps i.e.

- 1) To extract the active constituents from plant material by using ethanol, pet ether, chloroform and water.
- 2) To identify the phytochemical constituents of extracts.

**Extraction of active constituents**

About 10 gms of powdered drug of all the parts was extracted with pet ether using soxhlet apparatus. The extraction was carried out until the extractive became colourless. The excess solvent was removed from extractive by evaporation over boiling water bath. The dried extract was kept in desiccator and used for identification of active constituents present.

**Phytochemical analysis**

The following qualitative chemical tests for identifying various constituents were carried out on various extracts prepared [4-7].

**For Alkaloids-** Mayer's reagent, Dragandroff's reagent, Wagner's reagent, Hager's reagent test.

**For Carbohydrates-** Molisch's test, Benedict's test, Barfoed's test, Fehling's solution test.

**For Glycosides** – Legal test, H<sub>2</sub>SO<sub>4</sub> test, Borntrager's test, Killer-Killani test.

**For Proteins and Amino acids-** Millon's reagent, Ninhydrin reagent test, Biuret and Lead acetate test.

**For Sterols and Triterpenoids** – Libermann test, Salkowski test, Noller test.

**For Phenolic compounds** – FeCl<sub>3</sub> test, Zinc-Hydrochloride reduction test.

**For Flavonoids-** Shinoda test, Zinc-Hydrochloride test, Alkaline reagent test.

**For Tannins** – Gelatin test, FeCl<sub>3</sub> test, Vanillin-Hydrochloride test, Alkaline reagent test, Bromine water test.

**For Saponins** - Froth forming test.

**For Fixed Oils and fats** – Spot test

**For Mucilage and gums** – Ruthenium red test and Water absorption test.

**For Anthraquinone** – Benzene and 1% NH<sub>4</sub> solution test.

**Observation**

The preliminary phytochemical analysis showed presence of alkaloids and tannins in all the pet ether extracts of all plant parts. It indicates that these two components are present prominently in all parts of *Celastrus paniculatus*.

**Observation Table**

| Sr. No | Phytoconstituent and Test                                     | Expected Observation  | Pet ether extract of |      |      |      |
|--------|---|-----------------------|----------------------|------|------|------|
|        |   |                       | Seed                 | Leaf | Stem | Root |
| 1.     | <b>Alkaloid</b>   |                       |                      |      |      |      |
|        | Extract + Mayer's reagent                                     | White Creamish ppt.   | ++                   | ++   | ++   | ++   |
|        | Extract + Dragandroff's reagent                               | Orange colour         | ++                   | ++   | ++   | ++   |
|        | Extract + Wagner's reagent                                    | Brown red ppt.        | ++                   | ++   | ++   | ++   |
|        | Extract + Hager's reagent                                     | Yellow ppt.           | ++                   | ++   | ++   | ++   |
| 2.     | <b>Carbohydrates</b>  |                       |                      |      |      |      |
|        | Extract + Molisch's reagent                                   | Purple-Violet         | ---                  | ---  | ---  | ---  |
|        | Extract + Benedict's reagent                                  | Reddish-brown ppt.    | ---                  | ---  | ---  | ---  |
|        | Extract + Barfoed's reagent                                   | Red colour            | ---                  | ---  | ---  | ---  |
|        | Extract + Fehling's solution                                  | Brick red ppt.        | ---                  | ---  | ---  | ---  |
| 3.     | <b>Glycosides</b>   |                       |                      |      |      |      |
|        | Extract + Anthrone + H <sub>2</sub> SO <sub>4</sub> + heating | Purple-green colour   | ---                  | ---  | ---  | ---  |
|        | Extract + Legal test  | Pink to red           | ---                  | ---  | ---  | ---  |
|        | Extract + Borntrager's test                                   | Pink colour           | ---                  | ---  | ---  | ---  |
|        | Extract + Killer- Killani test                                | Greenish blue colour  | ---                  | ---  | ---  | ---  |
| 4.     | <b>Protein &amp; Amino acids</b>                              |                       |                      |      |      |      |
|        | Extract + Millon's reagent                                    | White ppt.            | ---                  | ---  | ---  | ---  |
|        | Extract + Ninhydrin reagent                                   | Blue-violet colour    | ---                  | ---  | ---  | ---  |
|        | Extract + Biuret test   | Violet colour         | ---                  | ---  | ---  | ---  |
| 5.     | <b>Sterols and triterpenoids</b>                              |                       |                      |      |      |      |
|        | Extract + Libermann test                                      | Bluish green          | ---                  | ---  | ---  | ---  |
|        | Extract + Salkowski test                                      | Red fluorescent       | ---                  | ---  | ---  | ---  |
|        | Extract + Noller's test                                       | Pink colour           | ---                  | ---  | ---  | ---  |
| 6.     | <b>Phenolic compounds</b>                                     |                       |                      |      |      |      |
|        | Extract + FeCl <sub>3</sub> test                              | Blue-green colour     | ---                  | ---  | ---  | ---  |
|        | Extract + Zinc-HCl reduction test                             | Yellowish-Orange      | ---                  | ---  | ---  | ---  |
| 7.     | <b>Flavanoids</b>   |                       |                      |      |      |      |
|        | Extract + Shinoda test  | Pink scarlet, crimson | ---                  | ---  | ---  | ---  |

|     |  |                                    |     |     |     |     |
|-----|--|------------------------------------|-----|-----|-----|-----|
|     | Extract + Zinc-HCl reduction test                  | Red colour                         | --- | --- | --- | --- |
|     | Extract + Alkaline reagent                         | yellow to colourless               | --- | --- | --- | --- |
|     | <b>Tannins</b>                                     |                                    |     |     |     |     |
| 8.  | Extract + FeCl <sub>3</sub> test                   | Blue-green ppt.                    | ++  | ++  | ++  | ++  |
|     | Extract + Vanillin- H <sub>2</sub> SO <sub>4</sub> | Purple-red colour                  | ++  | ++  | ++  | ++  |
|     | Extract + Alkaline reagent                         | Yellow to red ppt.                 | ++  | ++  | ++  | ++  |
|     | Extract + Bromine water                            | Decolourisation of Br <sub>2</sub> | ++  | ++  | ++  | ++  |
|     | <b>Saponins</b>                                    |                                    |     |     |     |     |
| 9.  | Froth forming test                                 | Stable froth                       | --- | --- | --- | --- |
|     | <b>Fixed oils &amp; Fats</b>                       |                                    |     |     |     |     |
| 10. | Spot test  | Appearance of stain                | --- | --- | --- | --- |
|     | <b>Mucilage &amp; Gums</b>                         |                                    |     |     |     |     |
| 11. | Extract + Ruthenium Red                            | Pink colour                        | --- | --- | --- | --- |
|     | <b>Anthraquinone</b>                               |                                    |     |     |     |     |
| 12. | Extract + Benzene+ 1% NH <sub>4</sub>              | Pink, red or violet colour         | --- | --- | --- | --- |

### Conclusion

The active components present in pet ether extract of all parts of *C. Paniculatus* are alkaloids and tannins.

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