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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 ^[1]. 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 ^[2] leprosy, leucoderma, paralysis and asthma ^[3].

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 ^[1]. 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, H₂SO₄ 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 – FeCl₃ test, Zinc-Hydrochloride reduction test.

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

For Tannins – Gelatin test, FeCl₃ 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% NH₄ 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.	Alkaloid					
	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.	Carbohydrates					
	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.	Glycosides					
	Extract + Anthrone + H ₂ SO ₄ + heating	Purple-green colour	---	---	---	---
	Extract + Legal test	Pink to red	---	---	---	---
	Extract + Borntrager's test	Pink colour	---	---	---	---
	Extract + Killer- Killani test	Greenish blue colour	---	---	---	---
4.	Protein & Amino acids					
	Extract + Millon's reagent	White ppt.	---	---	---	---
	Extract + Ninhydrin reagent	Blue-violet colour	---	---	---	---
	Extract + Biuret test	Violet colour	---	---	---	---
5.	Sterols and triterpenoids					
	Extract + Libermann test	Bluish green	---	---	---	---
	Extract + Salkowski test	Red fluorescent	---	---	---	---
	Extract + Noller's test	Pink colour	---	---	---	---
6.	Phenolic compounds					
	Extract + FeCl ₃ test	Blue-green colour	---	---	---	---
	Extract + Zinc-HCl reduction test	Yellowish-Orange	---	---	---	---
7.	Flavanoids					
	Extract + Shinoda test	Pink scarlet, crimson	---	---	---	---

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

Conclusion

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

References

1. Naveed Muhammad, Muhammad Saeed, Barkatullah, Muhammad Ibrar, Haroon Khan. Pharmacognostic studies of *Viola betonicifolia*. African Journal of Pharmacy and Pharmacology. 2012; 6(1):43-47.
2. Singh H, Krishna G, Baske PK. Plants used in the treatment of joint diseases (rheumatism, arthritis, gout, lumbago) in Mayurbhunj district of Odisha, India. Report Bot. Surv of India, 2010, 22-26.
3. Gattu M, Kenneth LB, Alvin VT, Jerry JB. Reversal of scopolamine induced deficits in navigational memory performance by the seed oil of *Celastrus paniculatus*. Pharmacology; Biochemistry & Behaviour 1997; 57(4):793-799.
4. Kokate CK, Purohit AP, Gokhale SB. Practical Pharmacognosy, 41st edition; Nirali Prakashan, Pune, 2008.
5. Jena A, Saha D, Biswal B, Jana SB, Koley A, Sur D *et al.* Pharmacognostic studies of leaves of *Pterospermum suberifolium*. International Journal of Research in Pharmaceutical and biomedical Science. 2011; 2(1):252-255.
6. Okhale SE, Amanahabo MO, Jegede IA, Egharevba HO, Muazzam IW, Kunle OF. Phytochemical and pharmacognostic investigation of antidiabetic *Scoparia dulcis* Linn. Scrophulariaceae whole plant grown in Nigeria. Researcher 2010; 2(6):7-16.
7. Pande M, Pathak A. Preliminary pharmacognostic evaluation and phytochemical studies on leaf of *Chenopodium album* (Bathua sag). Asian J Exp Biol Sci. 2010; 1(1):91-95.