

## Research Article

**Physicochemical Evaluation of *Araucaria hetrophylla*****Poonam Surya<sup>1\*</sup>, K. Pavani<sup>1</sup>, Prudhvi Raj<sup>1</sup>, A. Sarany<sup>1</sup>,****A. Ravi Kumar<sup>1</sup> and Rizwana Shaik<sup>2</sup>**<sup>1</sup>Department of Pharmacognosy, Bapatla College of Pharmacy,  
Bapatla-522 101, Andhra Pradesh, India.<sup>2</sup>Department of Pharmaceutical Chemistry, Bapatla College of Pharmacy,  
Bapatla -522 101, Andhra Pradesh, India.**ABSTRACT**

With increasing demand in the field of herbal medicines and cosmetics, it has become necessary and pertinent to probe into the area of systematic knowledge about herbal drugs. There is a need for the application of this knowledge in authentication, detailed study and practical utilization of crude drugs. The present paper deals with the taxonomy, crude, powder study pertaining to organoleptic, microscopic, fluorescence and physical constant evaluations of *Araucaria hetrophylla*.

**Keywords:** *Araucaria hetrophylla* Physicochemical, studies.

**INTRODUCTION**

Pharmacognosy is the study of the structural, physical, chemical and sensory characters of crude drugs of animals, plants and mineral origin. The search for biologically active compounds from natural source has always been of great interest to researchers looking for new source of drugs useful in infectious diseases. Higher plants have played a vital role as the source of important therapeutic agents. Only a small percentage of higher plant species have so far been exploited and much remains to be done. *A. hetrophylla* belongs to the family Araucariaceae Literature survey of this plant indicates its high medicinal value.

**MATERIALS AND METHODS**

*A. hetrophylla* is a medicinal plant. Disease free plants were collected from Vegetative parts of the plant was identified and authenticated and preserved in crude drug museum Department of Pharmacognosy Bapatla College of Pharmacy Bapatla Andhra Pradesh India.

**PREPARATION OF PLANT MATERIAL**

Remove adhering dust and then dried under shade. Finally powdered with the help of pulverizer. This powder was used for further studies. Morphological characters of plants like colour, surface texture, taste and odour were examined. Free hand sections were taken, cleared with chloralhydrate and treated with phloroglucinol and mounted in glycerin. Organoleptic evaluation, histochemical colour reactions, fluorescence evaluations, behaviour of the powder with different chemical reagents, Ash values, and preliminary phytochemical analysis were determined.

**RESULTS AND DISCUSSION****Macroscopic characters**

Herbs of strong- scented leaves alternate, entire and incised. Petiolated leaves and obscurely lobed hoary on both surface. Broadly hemispheric pedicellate second nodding distant in lax long racemes terminating the branches, outer involucre bracts green hoary, inner broadly scarious, receptacular hairs straight, outer flowers 1 seriate, fertile, inner flowers bisexual fertile or sterile, disk-flowers fertile, bracts glabrous. Anther bases obtuse, yellow tubular small flowers. Fruit are very small achenes. The taxonomic features collected from the species have been confirmed with the flora of Andhra Pradesh and Authenticated.

**Organoleptic evaluation**

Colour, odour, taste, texture and special features are recorded (Table -). Histochemical colour reactions were noted and presented (Table-). Behavior of the powder with different chemical reagents is

presented (Table-). Total ash values, NaOH insoluble ash, ethanol insoluble ash, acid insoluble ash (HCl), sulphated ash are presented (Table-).

**Table: Organoleptic evaluation of *A. hetrophylla***

S.No.	Particulars	Observations
1	Colour of Powder	Pale green
2	Odour	Aromatic and pleasant
3	Taste	Bitter and astringent
4	Texture	Smooth
5	Special features	Snake shaped leaves which are pinnately compound

Number of + values indicates the intensity of nature of colour change to histochemical zone

### Fluorescence analysis

*A. hetrophylla* plant powder and the extracts of the powder on various solvents were examined under ordinary light and ultra- violet light (365 nm). This powder was also treated with various chemical reagents and the changes in colour were recorded. These results were presented (Table-).

### Phytochemical screening

The phytochemical test performed and results obtained are presented in Table. The macroscopic and microscopic characters, fluorescence analysis, phytochemical characters can be used as a diagnostic tool in the correct identification of plants. The adulterants if any in the plant material can also easily identified by these studies.

**Table: Ash values of *Aroucaria hetrophylla***

S.No.	Parameters	Ash values (PPin%)
1	Total ash value	11.45
2	Sodium hydroxide insoluble ash (NaOH)	1.21
3	Ethanol (insoluble ash)	2.9
4	Acid insoluble ash (HC1)	3.42
5	Sulphated ash (H <sub>2</sub> SO <sub>4</sub> )	6.43

The values are average of three replicates.  
Values are expressed in percentage on dry weight basis

**Table: Fluorescence and Behaviour of the powder of *Aroucaria hetrophylla* with different chemical reagents**

S.No.	Test	observations	
1	Powderf picric acid	Yellow colour	Presence of alkaloids
2	Powderf Cone. Sulphuric acid	Reddish brown colour	Presence of steroids
3	Powderf aqueous ferric chloride	Green fluorescence	Presence of flavonoids
4	Powderf iodine solution	Blue colour	Presence of starch
5	Powderf ammonia solution	Pink colour	Presence of anthraquinone
6	Powderf aqueous silver nitrate	White precipitate	Presence of protein
7	Powderf aqueous potassium hydroxide	Yellow colour	Presence of flavonoids

Sl. No.	Treatment	Visible	UV (365nm)
1	Benzene	Pale green	Light pink
2	Petroleum Ether	Pale green	Reddish
3	Ethanol	Olive green	Colourless
4	Solvent Ether	Pale green	Light pink
5	Chloroform	Olive green	Rose
6	Acetone	Pale green	Reddish
7	Water	Dull green	Colourless
8	Methanol	Olive green	Pinkish
9	Hydrochloric acid (HCl)	Pale green	Pinkish
10	Sulphuric acid (H <sub>2</sub> SO <sub>4</sub> )	Light green	Pink
11	Sodium hydroxide(NaOH)	Olive green	Colourless
12	N- Propanol	Olive green	Reddish
13	Powder as such	Pale green	Whitish green

Followed ancient paints colour chart

**Table: Phytochemical screening of *A. hetrophylla***

Sl. NO.	Types of compounds	Methanolic extract
1	Alkaloids	+++
2	Saponins	+++
3	Carbohydrates	+++
4	Glycosides	+++
5	Flavonoids	+++
6	Gums and Mucilage	++++
7	Proteins and Amino acids	+++
8	Tannins and phenolic compounds	+++
9	Steroids and sterols	+++
10	Fixed oils and fats	+++
11	Triterpenoids	+++
12	Resins	+++
13	Santonica/Artemisinin	+++

\*\*\* Present

## CONCLUSION

*Araucaria hetrophylla* plants physicochemical constants and phytochemical evaluation were done *Araucaria* genus is an important flora of medicinal value. Works are in progress in evaluation of physicochemical and phytochemical constituents and pharmacological activity of tulsi and other species.

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