

PRELIMINARY PHYTOCHEMICAL ANALYSIS OF *POLYALTHIA LONGIFOLIA* SEEDSMUNDHE KAVITA S<sup>1</sup>, TORANE RASIKA C. <sup>1</sup>, DEVARE SWATI <sup>1</sup>, DESHPANDE NIRMALA R.<sup>1</sup>, KASHALKAR RAJASHREE V. \*<sup>1</sup> Dr.T.R.Ingle Research Laboratory, Department of Chemistry, S.P.College, Tilak Road, Pune 411030, India.

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## ABSTRACT

*Polyalthia longifolia* (Ashoka) has been used in the traditional system of medicine to cure various disorders. The use of plant extracts and isolated compound/s has provided basis in the preparation of modern pharmaceutical medicines. *P. longifolia* is a lofty evergreen tree, native to India and has been known to possess anti-ulcer, anti-inflammatory, antioxidant, antimicrobial and antifungal activities. The preliminary studies of *P.longifolia* seeds have been performed to investigate its potentialities. The preliminary phytochemical evaluation of various extracts indicated that the seeds are rich source of alkaloids, tannins, phenols, flavonoids and carbohydrates. This study provides fundamental data on the availability of various chemical constituents present in *P. longifolia* seeds. Loss on drying and moisture content experiments was carried out to know the presence of volatile organic matter.

**Keywords:** Phytochemical parameters, *Polyalthia longifolia* seeds.

## INTRODUCTION

*P. longifolia*, (Annonaceae) is native to India and Sri Lanka. It is known by various common names like False Ashoka, the Buddha Tree and Indian Fir tree, *Ashoka* or *Devadaru* in Sanskrit, *Debdaru* in Bengali and Hindi, *Asopalav* (Gujarati), *Glodogan tiang* (Indonesian), *devdar* in Marathi and *Nettilinkam* in Tamil <sup>1</sup>. Literature survey revealed that various parts of the plant possess different biological activities. The fresh stem bark juice is used to treat indigestion. The diterpenoids isolated from the seeds of *P. longifolia* demonstrated significant antibacterial and antifungal activities <sup>2</sup>. Jayaveera et al evaluated the antibacterial potentiality, phytochemical screening and anthelmintic activity of flowers of *P. longifolia* <sup>3</sup>. The phytochemical investigation of the ethanol extract of leaves of *P. longifolia* var. *pendula* has revealed the antimicrobial activity for isolated diterpenes <sup>4</sup>. It has been reported that alkaloids isolated from the roots of *P.longifolia* var. *pendula* showed antimicrobial activity <sup>5</sup>. Taking into consideration the medicinal importance of the plant, screening of this cherished plant – *P. longifolia* seed was achieved. In the present study an attempt is made to investigate the preliminary phytochemical analysis which supports modern chemical formulation.

## MATERIAL AND METHODS

## Plant material

The Plant material is collected in the month of August in Pune, Maharashtra, India. It is authenticated at Botanical Survey of India, Pune, India. Its Voucher Specimen No. is BSI/WRC/Tech/2009/POLMK1. The dried and pulverised material was used for analysis.

## Phytochemical Analysis

The phytochemical parameters namely loss on drying and moisture content were determined to find out volatile matter, total ash content, acid soluble matter and water soluble matter were determined as per the standard procedures<sup>6,7</sup> to investigate the essential and non-essential elements with insoluble silicates.

Air shade dried and pulverized seed material (1g), was kept in contact with various solvents (non polar to polar) at room temperature for twenty four hours. Solvents are recovered under reduced pressure to achieve quantitative extraction.

Identification of various phytoconstituents such as alkaloids, phenolic compounds and tannins, flavonoids, carbohydrates and sugar were performed using standard protocols <sup>8</sup>, which help to isolate active metabolites.

## RESULTS AND DISCUSSION

The phytochemical analysis shows the acid insoluble matter is 13.09 % ( Table 1). The values for successive solvent extractions are recorded (Table 2) and it indicates that percent extractive value increase from non polar to polar solvents. The preliminary phytochemical analysis (Table 3) reveals that the alkaloids are present in polar solvents while steroids, tannins, phenols and flavonoids are found to be major active components present in non polar to polar solvents. Flavonoids are group of polyphenolic compounds which influence the radical scavenging, inhibition of hydrolytic and oxidative enzymes. The phenols, tannins, flavonoids and alkaloids are complex moieties present in *P.longifolia* seed extracts shows higher potentialities towards antioxidant properties.

Table 1: Analysis of phytochemical parameters

Parameter	Value
Moisture content	8.23 %
pH	5.76
Loss on drying	12.15 %
Total ash	2.97 %
Acid-insoluble matter	13.09 %
Water-soluble matter	12.90 %

Table 2: Extractive values

Extracts	Percentage Value
Hexane	7.44 %
Ethyl acetate	7.64 %
Acetone	9.0 %
Ethyl alcohol	10.0 %
Methyl alcohol	10.5 %
Aqueous	12.0 %

Table 3: Preliminary Phytochemical screening of *Polyalthia longifolia* seed extracts

Chemical Constituents	Seed extracts				
	Hexane	Ethyl acetate	Acetone	Ethyl alcohol	Methyl alcohol
Alkaloid	-ve	-ve	+ ve	+ ve	+ ve
Steroid	+ ve	+ ve	+ ve	+ ve	+ ve
Tannin/s	+ ve	+ ve	+ ve	+ ve	+ ve
Phenol	+ ve	+ ve	+ ve	+ ve	+ ve
Flavonoid	+ ve	+ ve	+ ve	+ ve	+ ve
Starch	-ve	-ve	+ve	+e	+ve
Protein	- ve	- ve	+ve	+ ve	+ ve

+ ve = present, - ve = absent

### CONCLUSION

The present study confirms the use of *P. longifolia* seeds in traditional medicines and phytochemical data will be helpful in the standardization and quality control of precious indigenous drug and also for pharmaceutical industries.

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