



Evaluation of physico-chemical and preliminary phytochemical screening of *walsura piscidia roxb*

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ABSTRACT

Objective: To evaluate the physico-chemical parameters as well as to investigate the active principle constituent through preliminary phytochemical screening. **Methods:** *Walsura piscidia* Roxb was collected and about 200g of the powdered material was subjected to Soxhlation. Later the extract was tested for the presence of various chemical constituents according to standard procedures. **Results:** The results of physico-chemical parameters like Ash value, extractive value, florescence analysis and preliminary phytochemical screening were shown significant results. **Conclusion:** The present study concluded that the physic-chemical parameter and preliminary phytochemical screening helpful to obtaining a quality, purity and sample identification.

Keywords: *walsura piscidia roxb* phytochemical studies; Physico-chemical parameters; Fluorescence analysis.

INTRODUCTION

Walsura piscidia Roxb is an evergreen tree widely distributed in the tropical areas of Asia, such as India, Southern China, Malaysia, and Indonesia (Suri Appa Rao *et al*, 2012). The genus of *Walsura* Roxb belongs to family Meliaceae. It has comprised 10 species in India (Hooker 1872, Ghosh1961). The plant is commonly known as Cheddavokko in Tamil, Male sagade in Kannda, Perillapacha in Malayalam.

Leaves are compound, trifoliolate, alternate, spiral; rachis up to 5 cm long, triangular, pulvinate, glabrous; petiolule of side leaflets 0.4-1 cm long and middle leaflet with 1.3-3 cm long, swollen at both ends, angled or subterete; lamina 4-15 x 2.5-5 cm, variable in shape, narrow oblong to elliptic or narrow obovate, apex acuminate with retuse tip or rounded with retuse, base acute to cuneate, margin entire, chartaceous to subcoriaceous, glaucous beneath; glabrous; midrib flat above; secondary nerves 7-13, gradually curved; tertiary nerves broadly reticulate, slender.

Flowers greenish-yellow; Fruit and Seed are Berry ovoid, to 1.3 cm long; seeds 1-2, pale brown, enclosed in a white fleshy aril Trees grows up to 15 m tall. Bark is pale brown, shallowly fissured, lenticels rusty brown; blaze pink. Branch lets are slender, terete, lenticellate,

glabrous (Raja jency ester *et al*, 2015).

Traditionally the plant is reported for its Anti-microbial (Sri Rama Murthy *et al*, 2008), Stimulant, Expectorant, emmenagogue and emetic properties. According to the literature tribal people uses this plant to treat various diseases like skin allergies, astringent and diarrhea (Pullaiah *et al*, 1999).

MATERIALS AND METHODS

Collection of plant material

Walsura piscidia Roxb was collected from Western Ghats and identified by Dr.V. Chelladurai, Rtd Senior Research Officer, Tirunelveli, Voucher specimens have been deposited at Gokula Krishna College of Pharmacy, Department of Pharmacognosy, Sullurpet, Nellore Dist, Andhra Pradesh (Voucher No- GKCP-25).

Preparation of Extract

About 200g of the powdered material was subjected to Soxhlet and exhaustively extracted with 80% ethanol for 20 hrs. The solvent was distilled off at low temperature under reduced pressure using rotary flash evaporator. The semisolid mass obtained was dried in an oven at 40°C, and powdered (WHO, Geneva 2000, Ayurvedic Pharmacopoeia 2007).

Chemicals Used

All Chemicals and reagents used for Phyto-chemical evaluation were analytical grade and obtained from Bros Scientifics, Tirupathi.

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Table 1: Determination of Physico-Chemical Evaluation of Ariel partsextract of Walsura piscidia Roxb

S.no	Parameters	Results (%w/w)
Ash Value		
1	Total ash	4.1
2	Water soluble ash	3.3
3	Acid insoluble ash	0.8
4	Sulphated ash	1.2
5	Moisture content	1.9
Extractive Value		
1	Petroleum ether Soluble	2.8
2	Chloroform Soluble	3.8
3	Ethanol Soluble	10.7
4	Water Soluble	12.2

Table 2: Phyto-chemical screening of Ariel parts extract of Walsura piscidia Roxb

S.no	Chemical constituents	Aqueous extract	Ethanolic extract
1	Alkaloids	-ve(Negative)	-ve(Negative)
2	Glycosides	+ve (Positive)	+ve (Positive)
3	Saponin glycosides	+ve (Positive)	+ve (Positive)
4	Flavonoids	+ve (Positive)	+ve(Positive)
5	Tannins	+ve(Negative)	+ve(Positive)
6	Steroids	-ve(Negative)	+ve (Positive)
7	Triterpenoids	-ve(Negative)	+ve(Positive)
8	Coumarine	-ve(Negative)	+ve(Positive)
9	Phenols	+ve (Positive)	+ve(Positive)
10	Protiens	-ve(Negative)	-ve(Negative)
11	Carbohydrates	+ve (Positive)	+ve (Positive)

Table 3: Florescence analysis of Powdered Ariel partsextract of Walsura piscidia Roxb

S.no	Reagents	Normal Light	UV Light
1	50 % Sulphuric acid	Brown	Green
2	50 % Hydrochloric acid	Brown	Blueishgreen
3	50 % Nitric acid	Golden Yellow	Green
4	10 % Sodium hydroxide	Brown	Greenish yellow
5	Ethanol	Brown	Green
6	Petroleum ether	Brown	Pale Green
7	Ethylacetate:Hcl(1:1)	Brown	Cherry red
8	Chloroform	Golden Yellow	Pale Green
9	Ethyl acetate	Yellowish Brown	Pale Green

Physico-Chemical Evaluation

The Physico-Chemical Evaluation was carried out to investigate the percentage of ash value, Extractive Value, & Moisture content and was determined as per standard Methods (Kokate, 2010).

Phyto-chemical Screening

Phytochemical tests were carried out to find out the presence of phytoconstituents like alkaloids, glycosides, phenols, tannins, steroids, carbohydrates, proteins, flavonoids, gum and volatile oil etc (Raaman 2006, Khandelwal 1998).

Fluorescence Analysis

Powdered Ariel Part material was analyzed under Visible and Long UV light after treatment of various Organic and inorganic reagents like 50% HCl, 50% H₂SO₄, 50% HNO₃, 10% NaOH, Petroleum ether, chloroform, Ethanol, Ethyl acetate & HCl (1:1). (Khandelwal 1998, Dinesh kumar 2012).

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RESULTS

Physico-Chemical Evaluation

The results obtained from the above study were tabulated in Table 1.

Phyto-chemical Screening

The phyto-chemical screening mainly showed the presence of Glycoside, Flavonoids, Triterpenoids, Steroids, Tannins, Phenols and Coumarin etc., the results were tabulated in Table 2. and fluorescence analysis in Table 3.

DISCUSSION

The physical constant evaluation of the crude drugs is an important parameter in detecting adulteration or

improper handling of drugs. The total ash in particularly important in the evaluation of purity of drugs i.e., presence or absence of foreign inorganic matter such as metallic salts and/or silica (Musa 2006).

Standardization is an essential measure of quality, purity and authenticity. As there is no Pharmacognostic work recorded on this medicinally potent plant, the present work was undertaken to put down the standards which could be useful for establishing its authenticity.

The information obtained from the preliminary phytochemical screening will reveal the useful findings about the chemical nature of the drug. Total ash value, fluorescence analysis and extractive values will be helpful in identification and authentication of the plant material (Nayak2010, Kumar2011).

Medicinal herbs has comparatively less side effects than the chemical ones *Phlogacanthus thrysiflorus* nees was reported to have antioxidant and free radical scavenging property which predicts that the plants may be used as a remedy for many diseases (Kumar 2012).

Physicochemical parameters of *Walsura piscidia* Roxb showed Moisture content 1.9% and total ash 4.1%, the weight of the ash left behind after the combustion is of important parameter for the standardization of drug. *Walsura piscidia* Roxb contains the acid insoluble ash 0.8%, water soluble ash 3.3% and sulphated ash 1.2% which are tabulated in table 1.

The extractive values are useful to evaluate the chemical constituents of crude drug (Thomas 2008). Preliminary phyto-chemical screenings ascertain the presence of Glycoside, Flavonoids, Triterpenoids, Steroids, Tannins, Phenols and Coumarin etc., in Ariel parts of extract.

The extract of *Walsura piscidia* Roxb when exposed to UV light, it exhibits fluorescent effects that provide evidence for the presence of fluorescent compounds.

CONCLUSION

In conclusion, the present work was undertaken with a positive approach to put down standards which could be useful to detect the potency and authenticity of *Walsura piscidia* Roxb for its medicinal values.

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CONFLICT OF INTEREST: None.

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