

Phytochemical Investigation of *Santalum album* Leaves and Fruits

Dr. Santosh Agnihotri*, Kanchan Tamrakar**

*Department of Botany, Govt. Modal Science College Rewa, India

**A.P.S. University Rewa, India

ABSTRACT

Santalum album commonly known as Sandalwood is used traditionally for health and wellness. It is an evergreen and hemi-parasitic tree and has a long history in Indian religious rituals and traditional Chinese medicine. Due to its wide application in cosmetics and therapeutics, we have done this study to explore the possibility of using aqueous extract of *S. album* from leaves and fruit for Phytochemical screening of these plants was performed for constituents indicated the presence of alkaloids, carbohydrates, tannin and phenolic compound, flavonoids, glycoside, amino acids, Inorganic acid and steroids. The results suggest that the Phytochemical properties of the leaf for using various ailments.

Key word: Phytochemical, *Santalum album*, leaves and fruits.

INTRODUCTION

Santalum album Linn. is one of the important herbal plant used in ayurveda for the treatment of various diseases. It is member of family Santalaceae and commonly known as sweta chandan. It is widely distributed in throughout the India especially in Indo-Malesian region and in the dry regions of peninsular India. Though it is naturalized in many parts of India i.e. in Vindhya Mountains southwards, also in Karnataka, Andhra Pradesh and Tamilnadu; it is cultivated for its aromatic wood and oil. (Abhijit, et al, 2015)

Sweta chandan is a small to medium sized, evergreen semi-parasitic tree, with slender branches, sometimes reaching up to 18 m in height and 2.4 m in girth. Bark reddish or dark grey or nearly black, rough with deep cracks on old trees; leaves glabrous, thin, elliptic-ovate or ovate-lanceolate, 1.5-8 cm 1.6-3.2 cm, sometimes larger; flowers straw-coloured, brownish purple, reddish purple or violet. Sandal is capable of growing in different kinds of soil like sand, clay, laterite, loam, black-cotton etc. (Brunke, 1995)

It is capable of regenerating profusely in the absence of fire and grazing. Sandalwood is used for acute dermatitis, bronchitis, cystitis, eye diseases, gonorrhoea, herpes, zoster, infection, palpitations, sunstroke, urethritis, vaginitis, psychopathic, Skin disorders, Heart ailments, Anti-pyretic, General weakness, Urinary tract infection and many more (Shankaranaryana, 1986). Here an attempt has been made to investigate the chemical present in the plant for curing various diseases.

MATERIAL AND METHODS:

Selection of plant material for study:

In present work *Santalum album* Linn. (Sweta chandan) have been selected for the study. It has been collected from civil line rewa of Rewa district (M.P.). The plant has identified on the basis of different pharmacopeial and botanical standard. Mostly extract of leaf and fruit has been used in the study.

Extraction:

The plant materials were washed under running water, cut into pieces, air shade dried and pulverized into fine powder in a grinding machine. A quantity of 100g of the dried powder of seed and leaves powder extracted individually with different individual solvent ie. Chloroform, Ethanol and Water respectively using Soxhlet. The soxhletion with Aqueous were due for a week to obtained extract. After that, the Extract was evaporated in water bath at 50 °C to obtained crude for antioxidant assay, phytochemical analysis, Determination of Bioactive compound.

Phytochemical Analysis:

Phytochemical analysis is a major procedure for estimation of particular chemical compound. Phytochemical analysis was preceded by the help of different specific method for each test. (Christopher et al, 2006)

RESULTS AND DISCUSSION

The phytochemical constituents of the plants are summarized in table 1. These bioactive compounds are known to act by different mechanism and exert antimicrobial action. Glycosides serve as defence mechanisms against predation by many microorganisms, insects and herbivores. Alkaloids are formed as metabolic byproducts and have been reported to be responsible for the antibacterial activity. Steroids have been reported to have antibacterial properties, the correlation between membrane lipids and sensitivity for steroidal compound indicates the mechanism in which steroids specifically associate with membrane lipid and exerts its action by causing leakages from liposomes. (Shankaranaryana et al,1981)

Table - 1 Phytochemical Investigation of Chandan Plant Samples

S.No.	Phytochemical test	Chandan leaf	Chandan friut
1.	<u>Carbohydrate</u> a) Molish test	-ve	+ve

	b) Cobalt chloride	+ve	+ve
2.	<u>Protein</u>		
	a) Million test	-ve	-ve
	b) Biuret test	-ve	-ve
	c) Xanthoprotein test	-ve	-ve
3.	<u>Steroids</u>		
	a) Salkowski reaction	+ve	-ve
4.	<u>Tanic acide for starch</u>	+ve	-ve
5.	<u>Test for nitrate</u>	-ve	-ve
6.	<u>Test for Flavonoid</u>		
	a) Flavonoid test	+ve	+ve
7.	<u>Test for Alkaloids</u>		
	a) Mayers test	+ve	+ve
	b) Wagner test	+ve	+ve
8.	<u>Test for Amino acide (cystein)</u>	-ve	-ve
9.	<u>Tannic & phenolic compound</u>		
	a) 5% Fecl ₃ sol ⁿ	+ve	+ve
	b) Lead acetate sol ⁿ	+ve	-ve
	c) Dil. iodene sol ⁿ	-ve	-ve
	d) Acetic acid sol ⁿ	-ve	+ve

10.	<u>Inorganic acid</u> a) Test for carbonet b) Murcuric chloride solution	+ve -ve	+ve -ve
11.	<u>Test for redusing polysccharide starch</u>	-ve	-ve

CONCLUSION

Santalum album leaves and fruits extract made in solution contains different secondary metabolites with biological activity that can be of therapeutic index. Phytochemical screening of crude extract shows the presence of alkaloids, Carbohydrates, tannins, phenols, and steroids, and, flavonoids. The consequences of this work has clarified that many active bioconstituents of *Santalum album* consist effective qualities in its tending action. Therefore it should be exploited by scientists in development of human medicines and drugs.

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AUTHORS

First Author – Dr. Santosh Agnihotri, Department of Botany. Govt. Model science College. Rewa India.

Second Author – Kanchan Tamrakar, Research Scholar, A.P.S. university. Rewa India.

Correspondence Author – Kanchan Tamrakar, Research Scholar, A.P.S. university. Rewa India. kanchan.tamrakar1@gmail.com, 07770962866.