PHYTOCHEMICAL INVESTIGATION OF *SANTALUM ALBUM* LEAVES AND FRUITS

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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[1].

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. Barth 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 purpleor violet. Sandal is capable of growing in different kinds of soil like sand, clay, laterite, loam, black-cotton etc[2].

It is capable of regenerating profusely in the absence of fire and grazing. Sandalwood is used for acute dermatitis, bronchitis, cystitis, eye diseases, gonorrhea, herpes, zoster, infection, palpitations, sunstroke, urethritis, vaginitis, psychopathic, Skin disorders, Heart ailments, Anti-pyretic, General weakness, Urinary tract infection and many more[3]. 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 Government Holkar Science College Indore (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. Acetone, 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 $50^{\circ}C$ 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[4].

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[5].

Table - 1 Phytochemical Investigation of Chandan Plant Samples

S.No.	Phytochemical test	Chandan leaf	Chandan fruit
1	Carbohydrates	+ve	-ve
	a) Molish test	+ve	+ve
	b) Cobalt Chloride		
2	Protein		
	a) Million test	-ve	-ve
	b) Biuret test	-ve	-ve
	c) Xanthoprotein test	-ve	-ve
3	Steroids		
	a) Salkowiski reaction	+ve	-ve
4	Test for nitrate	-ve	-ve
5	Test for Flavonoid		
	a) Flavonoid test	+ve	+ve
6	Test for Alkaloids		
	a) Mayers test	+ve	+ve
	b) Wagner test	+ve	+ve
7	Test for Amino acide (cystein)	-ve	-ve
8	Inorganic acid		
	a) Test for carbonet	+ve	+ve
	b) Murcuric chloride solution	-ve	-ve
9	Test for redusing polysccharide starch	-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.

REFERENCES

1. Abhijit, B. and Yogini, R. Phytochemical Analysis and Antibacterial Properties of Some Selected Indian Medicinal Plants. *Int.J.Curr.Microbiol.App.Sci, (***2015)**, 4(3): 228-235.

2. Brunke, E. J. Cyclosantal and Epicyclosantalal- a new sesquiterpene aldehyde from East Indian sandalwood oil, *Flavour &Fragrance Journal*, **(1995)**, 10: 211-219.

3. Shankaranaryana, K. H. Insect growth inhibitor from the bark of *Santalum album* Phytochemistry, **(1986)**, 19: 1239-1240.

4. Christopher, G. J., Emilio, L., Ghisalberti, J. A. and Elizabeth L. B.. Quantitative cooccurrence of sesquiterpenes; a tool for elucidating their biosynthesis in Indian sandalwood, *Santalum album*. *Phytochemistry*, **(2006),** 67(22): 2463-2468.

5. Shankaranaryana, K. H. and Venkatesan, K. R. 1981. Rectification of Benzene Extract: a Simple Method for Extracting Sandal Oil in Higher Yield, *Indian Perfumer*, XXV, **(1981)**, (3&4): 31-34.