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Pharmacognostical Study, Phytochemical Screening and Formulation Development From Achras Sapota. Bark Extract

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Abstract

In the recent years, the importance of herbal drugs in medicine has tremendous increased because of their fewer side effects. Consequently, the demand for the herbal formulation is increasing day by day. Achras sapota commonly known as chiku. Since there are no reports on the phytochemical aspects of stem of Achras sapota, it was chosen as the subject for this study. Antioxidants also play an important role in human health because the biologic defense mechanisms cannot operate under severe oxygen stress.The most widely used synthetic antioxidants, butylated hydroxyanisole (BHA) and butylated hydroxytoluene (BHT) are suspected to cause some safety concerns. Tocopherol , a natural antioxidant, is an effective antioxidant for lipid-containing foods but has limited usage . The fact that various antioxidants occur naturally in plants has been proven . Therefore, identification and development of safer natural antioxidants is more beneficial. Wound can be defined as a cut or break in the continuity of any tissue which may arise due to physical, chemical or microbial agents.

Keywords: Achras Sapota, sapotaceae, butylated hydroxytoluene, pharmacognostic study.

INTRODUCTION

The medicinal plants remained as a heritage for mankind throughout the world. Natural resources are the gift of nature. Human beings have been dependent on natural resources since their introduction on the earth for livelihood. The secret of healing substances almost invariably lies in natural substances (Datta, 2007). Achras sapota commonly known as chiku. Since there are no reports on the phytochemical aspects of stem of Achras sapota, it was chosen as the subject for this study.

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Phytochemical Reviews

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AIM & OBJECTIVE

Achras remain to be investigated for their biological properties. Mainly no of various species of this plant is studied for fruits utilization and for obtaining carbohydrates, proteins, enzymes and gum latex isolation. Few work conducted on isolation & chemical investigation on chemical constituent of bark of plant of Achras sapota and Phytochemical screening also gives some idea regarding the biological activity. Therefore in the present work, following aspect of Achras Sapota was planned for study and investigated: Selection, Collection and authentication of medicinal plant. Standardization and preliminary physicochemical evaluation of Achras Sapota plant material. Preparation of extracts of plant material &. Preliminary phytochemical investigation. Phytochemical and spectrophotometer characterization of plant extracts. Pharmacological screening of plant extracts.

NEED OF WORK

For thousands of years, medicinal plants have been used to benefit human health. Currently, they are used as herbal medicines, dietary supplements or tonics, with their application and demand increasing worldwide. However, continued scientific investigation is required to further enhance our understanding of medicinal plants, particularly with regard to their production and efficacy. To date, a large number of phytochemicals

have been identified in medicinal plants. These have a wide range of biological activities, including antibacterial, antivirus, and anticancer effects, as well as antioxidant, anti-inflammatory and neuroprotective effects. Naturally occurring compounds can exert complicated bioactivities and their efficacy can be difficult to ascertain. Therefore, comprehensive studies on the biosynthesis of phytochemicals and on their biological functions are needed. In the present study the bark of plant Achras sapota is investigated for pharmacognostic phyto chemical and pharmacologic screening. In pharmacognostic study the plant material was authenticated by Vineet Rawat deputy director Botanica Survey of India, Koregaon road, Pune by comparing Morphological features, it has confirmed that plant is Achras sapota and family sapotaceae. In pharmacognostic study of plant Archas Sapota, morphology, microscopy, microscopical, powder characteristics. The morphology of plant shows irregular shape, glabrous surface and bark brown in colour. In microscopy bark is consist of presence of cork, cambium medullary rays Secondary ploem. In microscopical powder characteristic of plant shows presence of starch grains, calcium oxalate crystals of fibers, when stained with dilute Iodine, dilute acetic acid, pholoroglucinol and conc HCL(1:1) The powder of bark of Achras sapota is subjected to evaluation of physical chemical parameters likes as foregin organic matter 0.12,%w/w Total ash value-9.8, Acid insoluble4.2%w/w, Water soluble-5.6%w/w, Ash value-, Water soluble-, Alcohol soluble-23.7%w/w, Extractive value- pet.ether 2.5%w/w, chloroform 1.9%w/w, methanolic extract 10%w/w. activities.
Isoxazole incorporated benzimidazoles (4a-4j) were tested against 2 gram-positive bacterial strains S. aureus, B. anthracis, 2 gram -ve bacterial strains P. aeruginosa, E. coli, and 2 fungal strains (A. niger and C. albicans) by cup-plate method for antimicrobial activity. The 4d, 4f and 4j compounds showed significant activity against gram-positive and gram-negative bacteria.

Plant Profile
Kingdom- Plantae
Sub Kingdom- Tracheobionta
Family- Sapotaceae
Synonyms- Chiku ,Chikoo , zapota Common name: - Chiku ,Chikoo , zapota The Regional names: Marathi- Chikoo
Hindi- Chiku
Sanskrit- Chiku
Scientific classification[44]: Super Division- Spermatophyta Division- Magnoliophyta.
Class- Magmoliopsida Sub Class- Dilleniidae. Order- Ebenales.
Family- Sapotaceae Genus- Achras Parts of plants:
Stem
Leaves
Flowers
Fruits

Chemical constituents: The methanolic extract of the bark yielded tannins (11.5%) also contain betacarotene and glucose. D-mannitol, beta-sitosterol, betaD-glucoside, and quercetin. Achras sapota contains tannin,coloring matter, starch and ash forming inorganic salts. Flower contain a volatile oil seeds contain a fixed fatty oil. Pulp of the fruit contain a large propotion of sugar and saponins. The bark also contain (20-25%) gum known as chickle gum used for preparation of chewing gum.
Medicinal Uses: Bark is used as tonic and astringent. Gum obtained from bark is used as chickle gum for preparation of chewing gum. Juice of fruit obtained contains multiple radicals cavenging used as antioxidant.Stem and bark extract shows antimicrobial activity. Acetone extract of leaf shows antibacterial activity.

Summary and Conclusion

The plant Achras sapota is a parental plant Achras sapota is taken for dissertation work on the basis of literature survey, bark of plant is selected. The pharmacognostic study of bark of Achras sapota shows microscopy, microscopical powder characteristic physical parameters like Lod ashvalue, extractive value were studied.

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