

PHARMACOLOGICAL USES OF COIR

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ABSTRACT

The coconut, *Cocosnucifera* L., is a plant that has been cultivated for its many benefits, especially in its nutritional and medicinal properties. Coconut is an unusual, edible fruit produced from coconut trees. The coconut tree is a type of palm that has a single straight stem and has been used for many purposes since prehistoric times. Every part can be used, including fruit, wood, and leaves. As a result, the trees are widely grown in many parts of South India for commercial and domestic use. From the coconut tree are found several products including coconut, soft coconut water, coconut, coconut shell and so on. All components are used. It is a unique source of various nutrients, so it has many medical functions including anti-inflammatory, anti-bacterial, anti-plastic, anti-diabetic etc to maintain good health. And this current review explains the facts of a healthy diet and several activities of the *Cocosnucifera* drug.

Keywords: *Cocosnucifera* L., coconut husk, coconut shell, health,

INTRODUCTION

The coconut palm *Cocosnucifera* belongs to the palm family, one of the largest in the monocotyledon group. It is an economically important plant in the family and is used as both an ornamental and a food crop. Coconut (*Cocosnucifera*; *Arecaceae*) is widely distributed in tropical regions of the world, ranging between 20° N and 20° S latitude. The fruit can float and endure long journeys in seawater. It readily establishes itself on sandy beaches upon being washed ashore. Coconut is the “tree of life” as it plays a vital role, in addition to giving food, drink and shelter, in the economies of many small island countries in the Caribbean, Indian, and Pacific Oceans. Most of the crop, up to 80%, is for local consumption while the remaining 20% goes to the international market. The main coconut producing countries are the Philippines, Indonesia, India, Papua New Guinea and the Pacific Islands. Its uses are so numerous and, as every part of the coconut palm is of some use, the coconut palm has been described as ‘one of Nature's greatest gifts to man’ Coconut (*Cocosnucifera*) and palm oils enriched in medium-chain fatty acids, such as lauric acid (12:0), are a feedstocks in the preparation of detergents • (*Cocosnucifera* L.) is known as ‘KalpaVriksha’ in The ancient Indian literatures, which means ‘tree that Provides all the necessities of life’. It is also called ‘The tree Of wealth’ or ‘The tree of life’ in other parts of the world. Coconut has many uses, including providing food and oil For millions and ornamental aesthetics

CULTIVATION OF COCONUT NUCIFERA

Propagation: The coconut palm is commonly propagated by Seeds. Since the productivity of the palm depends on the Quality of the seedlings, utmost importance should be given to Select the best nuts.

Planting and Season: The planting distance depends on the Type of plant or variety, soil type and weather monoculture or Associated culture or mixed culture is adopted, distance should Be in such a way that the fronds (leaves) of planting adjacent Palms to do not overlap when fully grown. **Interculturing:** Weeding and stirring the soil around the plant Should be done frequently. The interspace may be kept clean or Utilised for taking other crops, seasonals or perennials. **Care of young plants:** The young palms need proper care During the early stages of growth from transplanting upto 5Th year. The seedlings should be protected from stray cattle. **Special horticulture practices:** The dwarf varieties are on self-pollinating while tall varieties are considered Cross pollinating inter planting of mix planting be done to Increase the fruit set. Honey bees are considered to be very Useful for pollination and be reared in the vicinity of palm Cultures.

Irrigation: The coconut palm requires large quantities of water For its normal growth and timely production. In normal Conditions and in absence of rains every palm needs about 16-18 litre water daily.

Nutrition: To get a good yield, palms should be fertilized Regularly and with a quick frequency, Bimonthly applications Are more beneficial. Every well grown palm should be applied With 25 kg. Of FYM 1 kg of 5:10:5.

Micronutrients/Ormicem @ 2 kg/palm once in a year should be applied to avoid any micro-Nutrient disorders.

Plant protection: Important pests, Rhinoceros beetle, Red Palm weevil, leaf eating caterpillar and cockchafer beetle are The major insect pests. Occassionally mealy bug, rat and slug Also become trouble some.

HUSK OF COCONUT

Coconut husk represents the entire fibrous material enveloping the fruit constituting both the inner endocarp (liquid and solid food part) and outer mesocarp (fibrous part). The mesocarp, which is an assemblage of fibres and elastic cellular cork like parenchymatous cells cementing the fibrous materials dispersed throughout the mass. Retting in water of this material causes separation of the leathery exocarp (thin outer slippery cover) from spongy fibrous mesocarp. The fibrous strands are composed of a highly lignified form of cellulose, hence are harsh and rigid.

Properties of coir

- Coir is slightly acidic but not as acidic as peat

- Available nitrogen, phosphorus, calcium, magnesium, Iron, copper, and zinc are low, while sodium, chloride, And potassium are high, particularly if the coir was Prepared in a saline solution
- Coir has a very high water holding capacity
- Coir has a high germination index compared to compost (Lodolini et al., 2017)
- Coir dust does not collapse when wet or shrink Excessively as it dries (Cresswell)

NATURE AND STRUCTURE OF THE COCONUT SHELL

The coconut shell is covered with 5-10 cm thick coconut fruit strips that open up a 3.5 mm solid shell structure [13]. The outer appearance of the husk varies from brown to green when ripe to light green before ripening. There are other varieties with a yellow or yellowish color [14]. The husk is full of long, stunted strands, all running in one direction. The fibers are attached to a matrix of material called coir dust. As the husks are strong, they absorb or retain water ([15]). Groundwater level is reported to be 82.3% and the addition of 2% dust to sandy soils is said to increase today's humidity by 40%. Croucher and Martinez's comments in 1935 [16] show that coir dust ash is rich in sodium and potassium salts. The sodium chloride content of the ash decreases as the tree grows farther from the sea. This also contains sodium oxide and sodium carbonate. The content of potassium oxide is very high in ash produced at low temperatures and also easily dissolves in water [17].

COMPOSITION OF COIR

PHYSICAL COMPOSITION

PHYSICAL PROPERTIES	VALUE
Length in inches	6-8
Density	1.40
Tenacity	10.0
Breaking elongation	30
Diameter in mm	0.1 to 1.5
Rigidity of modulus	1.8924
Swelling in water	5%
Moisture at 65%RH	10.50

CHEMICAL COMPOSITION

CHEMICAL PROPERTIES	% COMPOSITION
Lignin	45.84
Cellulose	43.44
Hemicelluloses	00.25
Pectins & related compounds	03.00
Water soluble	05.25
ash	02.22

USES OF COIR

The use and use of coconut wire has a very long history, with ancient sailors making extensive use of these coconut-based cables in their vessels for a long time. Products are now a major industry. The coconut coir is made from the hard outer part (of the coconut shell) of the coconut fruit. As coconut fiber is 100% natural product this is a renewable raw material. Most coconut coir fiber extracted from coconut husks is 4 to 12 inches long and naturally brown and white in color. Sri Lanka and India are the largest coconut fiber. Manufacturer in the world also produce more than 90% of coconut fiber in the demand of world markets. There are many countries that produce coconut fiber and Sri Lanka is well known for producing the world's best coir.

TYPES OF COCONUT FIBRE

The various types of coconut coir in the market and the most popular

The different types of coconut coir on the market and the most popular types of fiber are.

The brown thread

White fiber

Bristle Coir

Buffering Coir

Considering the various systems it uses, the types of fiber are very coconut.

Coconut fence specification

According to the following heuat.com website there is some general information on coconut fiber suitable for industrial purposes.

Length > 50mm

Moisture content <15%

Cleanliness <3%

Packing Bonds Tightly Tied

Maximum 1x 40 'HC (17-18 metric tons)

PHARMACOLOGICAL USE OF COIR

1-Antidiabetic activity

The anti-diabetic effects of the *CocosNucifera* (Coconut) Husk were studied in 21 diabetic rats divided into three mice ($n = 7$). The team worked as moderators while Groups II and III worked as test teams. Mice were produced with diabetes by intraperitoneal administration of 150 mg / kg of alloxan. This extract was obtained by boiling the husks in boiling water for 45 minutes on a gas stove at 100 degrees Celsius and the liquid was filtered and placed as a test tea. The control group was given 2 ml of 0.9% salt (normal) daily, group II was given 2 ml of coconut tea daily, the third group was given 1g of Daonil and 4g of Mephomine daily via Oro-gastric tube and random blood sugar was measured daily in mice. Mice weights were monitored daily using a digital weight balance. At the end of the experiment the animals were slaughtered and harvested and fitted with histopathological slides. For diabetic rats, blood glucose levels were significantly reduced ($p < 0.05$) in the use of extracts and the most effective drugs indicated by the *CocosNucifera* (Coconut) Husk. Histopathological studies have shown similar ability to rejuvenate rats exposed to coconut milk (coconut tea) as well as those receiving Daonil and Metformine. It was therefore concluded that *cocosnucifera* (coconut) tea has a significant hypoglycemic and anti-diabetic effect on alloxan-induced diabetes. This effect is comparable to that of a combination of Daonil and Metformine, and may serve as an effective ingredient in diabetes management. It is therefore recommended that this study be conducted using human studies.

2- Anti-inflammatory activity

Fresh watery pieces of C husk fiber. *Nucifera* is used to treat arthritis and other inflammatory diseases traditional medicine in northeastern Brazil (7).The study uses animal models of inflammation (formalin test air bag model)The oil-rich release of *C. Nucifera* var. *Typica* (50, 0100 mg / kg) was severely restricted ($Po0.05$) at the timeThe animals licked and licked their formalin-injected paws as wellTo reduce inflammation caused by lower carra-Geenan injection by reducing cell migration, extravasation protein, and TNF-a production (45)husk fiber extraction was also tested for rat paw edema caused by carrageenan, histamine, and serotonin (44).Animals were previously treated with oral contraceptivesExtract (50, 100 or 150 mg / kg), F1 or F2 (1, 10, or 50 mg / kg),Promethazine (30 mg / kg), or methysergide (5 mg / kg). The extremely uncooked extract ($Po0.05$) reduced histamine (at150 mg / kg) and serotonin produced by rat paw edema (100 per centAnd 150 mg / kg). Even when mice were

treated with 1 mg / kg of F1, an important inhibitory effect was observed in histamine and serotonin-induced edema. However, F2 did not block it. Edema caused by any inflammatory agent. (4)

3-Analgesic activity

Crude husk-fiber extracted and two water-repellent extracts molecular weight fractions below (F1) and above than (F2) 1 kDa treated for its analgesic function by acetic acid made in the stomach, tail-flick, of plates in mice (44). All three of these items have been released

Peripheral and central antinociceptive activity. Oral treatment-separation of contaminants (50, 100, or 150 mg / kg) The most curfew is 24%, 34%, and 52.4%, respectively, compared to the control group. Subdivisions F1 and F2 reduced the total fusion by 10 no 50 mg / kg. In tail-flick tests, previous oral treatment with contaminant emissions (100 and 150 mg / kg), F1 (10 and 50 mg / kg), Or F2 (10 and 50 mg / kg) produced better or similar results in morphine (5 mg / kg) for up to 80 min. However, with without F1 (50 mg / kg, 60 min after administration), or contaminated discharge (150 mg / kg) or F2 (50 mg / kg) Significantly increased the rat response delay hot renewal in hot test. The machine of the action of the extracted material was tested using opioid antagonist naloxone (5 mg / kg), blockade antinociceptive effect of pollutants, F1, and F2, indicating potential action on opioid receptors. In another study, ethanol extraction of fiber husk (40, 60, or 80 mg / kg) showed significant analgesic Properties, as shown in the reduction of the number of wrapping and stretching applied to mice with 1.2% acetic acid (41). The results were similar to those of animals received aspirin (68 mg / kg), paracetamol (68 mg / kg), or morphine sulfate (1.15 mg / kg). In addition, management extraction of ethanol and morphine or pethidine not only produced analgesia in mice but also possible the analgesic effect of these two drugs. These studies were conducted using coconut husk Fiberfibers, which suggest that this part of the plant is A very potent analgesic. Cocosnucifera can allow production of cheap new drugs for several diseases and can provide an inexpensive source of further investigation is warranted. Re-classification of bioassay and classification of certain molecules are highly recommended for the chemical moiety responsible for this activity can be identified and established its mechanism of action.

4-Antioxidant activity

There is a great deal of interest in the use of certain foods prevent the onset of disease. Evidence Suggests that foods rich in phenolic chemicals can do so much better human health as a result of the results Of phenolic antioxidants (54). A study of the virgin coconut oil (VCO) has shown that the total content of seven times as much as commercial coconut oil for the process of obtaining pure oil is destructive some of the active organisms . In the program 1,1-diphenyl-2-picrylhydrazyl (DPPH) test, VCO required

4-Antimicrobial activity

Coconut (Cocosnucifera) fibers are reportedly used by people in rural South India to clean teeth daily. Since the beneficial effects of this plant material, in relation to antibodies against common cariogenic bacteria, can be scientifically proven, current research is being done.

Materials and methods: Coconut husks were collected, purified and disinfected by antimicrobial agents such as Streptococcus mutans, Streptococcus salivarius, Streptococcus mitis, and Lactobacillus acidophilus. The values obtained were then included in the statistical analysis using the same ANOVA and Tukey HSD method. **Results:** The extraction of coconut liquid showed antimicrobial activity based on the interaction of various substances tested with a blocking area from 4.44 to 15.33 mms. However, efficacy was low compared to chlorhexidine. **Conclusion:** The act of preventing cariogenic bacteria shown in the extraction of coconut water indicates the presence of the most effective ingredients in these extracts, which can be identified and incorporated into modern dental care systems to control tooth decay.

Discussion

Coconut trees derive from the palm family, which includes Many species of trees and plants. Coconut trees state . Themselves as hardy species, surviving in very tough& hot Climates with small quantity of water with high levels of Salt.Human use every part of the coconut , including the fibers, Juices, outer bark and fronds. And coconut tree trunks serve Industrial uses, making popular choices as housing materials and also prove structural supports. Coconuts, the fruits produced by trees, provide food and nutrition.

Summary and conclusion

The coconut palm majorly effect the rural economy of the many states. The export earnings derived by India from coconut are around Rs 3 000 million. India's now playing a vital role to grew economy by the production of various crop ,Moreover coconut is an ecofriendly crop which permits coexistence of multi-species plants.

Coconut increases fertility of soil in association with other crops and is quite profitable to organic farming if suitable intercrops are grown in the space between them . Theversatile coconut tree is a source of various chemical compounds, which are responsible of the various activities of the tree. • Recently, modern medicinal research has confirmed many health benefits of the multiple coconut products in various forms and all product of coconut help us in various medical activity for example recently a drug development program should be undertaken to develop modern drugs with the compounds isolated from coconut. Further changes are needs to be carried out on C. Nucifera in order to explore the concealed areas and their practical clinical

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