



REVIEW ON BENEFITS OF LEMON GRASS

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Article Received on 21/12/2023

Article Revised on 11/01/2024

Article Accepted on 01/02/2024

ABSTRACT

Cymbopogon citratus is an aromatic plant of Gramineae family well-known as lemon grass. *Cymbopogon* is derived from Greek word “kymbe-pogon” which means boat -beard. The lemon-like scent could be ascribed to the existence of a cyclic monoterpene (citral). The herb is a perennial grass, native and distributed in Asia, Africa, south and North America. It contains considerable group of flavonoids, essential oils, phenolic compound and other photochemical constituents which possesses pharmacological activities such as anti-obesity, antibacterial, anti-fungal, anti-nociceptive, anti-oxidant, anti-diarrheal, and anti-inflammatory properties which could enhance health. Owing to its volatility and lemon-like aroma, citronella oil is used as deodorants in cosmetics, toiletries, insecticides (bio-pesticide) and spent grass in agriculture, in pharmaceutical and chemical industries it is incorporated in the manufacture of perfumes, fragrances, soaps, detergents, aftershaves, cosmetics and as culinary flavor in food industries. In addition, lemongrass oil also contains essential minerals such as Fe, Zn, Mg, Na, K, Ca, Mn, P etc. This literature review was tailored to widely investigate the ethnobiological, photochemical compounds and pharmacological assays in attempt to divulge other plausible therapeutic activities.

KEYWORDS: The lemon-like scent could be ascribed to the existence of a cyclic monoterpene (citral).

INTRODUCTION

The most substantial and safest drugs since sundry are medicinal plants and they play remarkable role in public and primary health care.^[1] Medicinal herbs are therapeutic agents indispensable in the primary health care system in maintaining exceptional well-being and health condition.^[2,3] The untested and unscientific advancements have been observed in the use of herbs in the primary health care system both in Africa and Asia continents.^[5]

In the past, an increasing number of consumers are looking for new herbal products with unique features that provide acceptable moments while having enough health benefits^[7,8] Herbal drugs were produced from scientific or systematic study of the bioactive constituents, ethnopharmacology or indigenous knowledge of medicinal herbs.^[9]



Synonyms: cymbopogon, cochin grass, malabar grass citronella grass, barbed wire grass, silky heads.

Biological Source: It is obtained from the fresh areial parts of cymbopogon flexosus.

Family: Graminee.

Morphological Characteristics

Lemongrass is a they contain simple, bluish -green leaves with entire margins and are linear in shape. The are 18-36 inches long, taste -aromatic grass, odour - strong citrus It 1. 8m high and 1. 2 m in width. it has a small rhizome, and the leaves appear from the soil directly without any steam. lemon leaves are small to medium in size and are ovate, oblong and taper to a point on the non-stem end.

Biological Classification

*Kingdom: Plantae
*Division: Magnoliophyta
*class: Liliopsida
*order: Poales
*Family: Graminee
*Genus: Cymbopogon
*species: Flexosus

Geographical Source

Lemon grass of the species of are native to South Asia, South-east Asia and Australia. The so called East Indian lemon grass (Cymbopogon flexuosus), also known as Malabar or Cochin grass is native to India, Sri Lanka, Burma and Thailand; for the related West Indian lemon grass. lemon grass cultivati in india such as kerala, Tamil nadu, karnataka, Maharashtra, Gujarat, punjabi etc.



Pharmacology

• Anti-bacterial properties of lemongrass

Essential oils such as β -citral and α -citral have been isolated, characterised and analysed from lemongrass leaf. These compounds are active Anti-bacterial compounds with predominant activities against gram positive and negative bacterial isolated.^[7] In folk medicine, the plant has been used to combat bacterial infection such as meningitis, pneumonia, impetigo, cellulitis, folliculitis and food poisoning.^[11]

• Anti-inflammatory properties of lemongrass

Chronic inflammation is one of the prominent global health challenges and had been linked with life -threatening diseases, such as cancer.^[10] Natural products have been used in folk medicine to combat the insurgence of tissue inflammation in man. The ethnopharmacological studies of lemongrass explained it's usage as anti -inflammatory Herbal drugs in African and Asia countries. Citral extracted from lemongrass has enormously inhibited inflammatory mediators and serve

as additives in creams and ointment to treat topical inflammation.

• Antinociceptive properties of lemongrass

Lemongrass has been significantly important in reducing pains and anxiety in living organisms.^[4,5] In ancient time, the plant was used as analgesic or pain reliever for surgical operations and could help reduce behavioral and physiological response of the body to excessive pains.

• Anti-fungal properties of lemongrass

It also shows pronounced inhibition against fungal infections such as athlete's foot, ringworm, jock itch and yeast infection.^[14] antagonistic and synergistic effect by inhibiting the growth of filamentous fungi via inactivating of yeast cells.

• Anti-oxidant properties of lemongrass

Cymbopogon citratus contain natural antioxidant, such as caffeoylquinic acid, flavonoids, chlorogenic acid, phenolic acid, swertiajaponin and isoorientin. It also help

suppress oxidative stress in winstar rats investigated for diabetic conditions.^[9]

- **Anti-malarial properties of lemon grass**

Secondary metabolites such as Citral (3, 7-dimethyl-2, 6-octadienal), myrcene and citronella have been isolated from lemon grass and were characterized as antimalarial compounds. These isolated compounds show pronounced activity against plasmodium species^[6], Dichloromethane extract of *C. citratus* was tested against *P. berghei* and *P. falciparum* with pronounced activities of 2-10ug/ml.

- **Anti-HIV properties of lemon grass**

Citronella oil isolated from *C. citratus* leaf was reported to effectively cure mouth thrush caused by *Candida albicans* in HIV/AIDS patients with 1-5 days.

- **Anti-Diabetic properties of lemon grass**

Diabetes is one of the lethal diseases of the twentieth century. It inhibits the pancreas from production of adequate insulin and could prevent the regulation of blood sugar. The in-vivo anti diabetic potency of *C. citratus* was investigated via molecular docking at dose rate of 400 and 800 mg.^[4] The extracts show pronounced reduction in the level of insulin ($p < 0.001$), glucose ($p < 0.001$) and triglycerides ($p < 0.001$). The in-vitro anti diabetic potential of *C. citratus* was investigated against Type 2 diabetes via alpha-amylase and alpha-glycosides inhibitory assays.^[8]

CONCLUSION

Medicinal herbs have tremendously and uncharacteristically improve the quality of primary health care system in the provision of herbal drugs with no health effects or reactions. *Cymbopogon citratus* is native to tropical area of Africa, America, Asia, South and Central America. The plant is used as flavouring agents in food and beverage industries. Also, their application have been used in pharmaceutical, cosmetics, soap and detergent industries. In folk medicine, it has been used as antibacterial, antifungal, anti-inflammatory, anticancer, analgesic, antiseptic and antinociceptive and antioxidants agent. Recently, interests in medicinal plants have been centered on investigation of the pharmacology and phytochemical screening of secondary metabolites to explore their therapeutic potency and boost the production of novel herbal drugs. Essential oils and other bioactive compounds have been isolated, characterised and analysed in *C. citratus* for their pharmacological activities. Also, their applications have been reported in food, pharmaceutical, cosmetics, beverages, soap and detergent industries. In attempt to improve the phytochemical and pharmacological studies of *C. citratus*, important factors such as mode of propagation, extraction procedures, harvesting time should be monitored and addressed. These will enhance the physicochemical composition and biological activities of the *C. citratus* extracts and therefore, boost its economic value.

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