

Antibacterial, Anti-inflammatory properties and Therapeutic Benefits of Cardamom (*Elettaria cardamomum*)

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Abstract

Cardamom (*Elettaria cardamomum*) is a conventional fragrant plant for which a few pharmacological properties have been related. In this consider, the antibacterial movement of two cardamom extricates (natural product and seeds), wealthy in unstable compounds, against major periodontal pathogens was assessed. In addition, the capacity of the extricates to apply anti-inflammatory action was tried. Both cardamom natural product and seed extricates applied an antibacterial impact against *Aggregatibacter actinomycetemcomitans*, *Fusobacterium nucleatum*, *Porphyromonas gingivalis*, and *Prevotella intermedia* (least inhibitory concentrations: 0.5% [v/v], 0.25%, 0.062%, 0.125%, individually and least bactericidal concentrations: 1%, 0.25%, 0.062%, 0.25%, individually). The cell film of *P. gingivalis* was disturbed by a treatment with cardamom extricates proposing the bactericidal mode of activity.

The extricates moreover restrained biofilm arrangement in spite of the fact that it related with a development decrease. Besides, the cardamom extricates altogether diminished the emission of IL-1 β , TNF- α , and IL-8 by lipopolysaccharide-stimulated macrophages. Prove were brought that the anti-inflammatory movement may result from restraint of the NF- κ B signaling pathway. This ponder is the to begin with to give prove that cardamom natural product and seed extricates through their antibacterial and anti-inflammatory properties may be helpful specialists of intrigued against periodontal diseases.

Keywords:

Cardamom; pharmacology; antibacterial; anti-inflammatory; antimicrobial, therapeutic.

OBJECTIVES

To assess the knowledge of antibacterial and anti-inflammatory properties and therapeutic benefits for periodontal infections of cardamom.

HIGHLIGHTS

Cardamom (*Elettaria cardamomum*) is a traditional aromatic plant.

Cardamom extracts inhibit growth of major periodontal pathogens.

Cardamom extracts attenuate the inflammatory response of LPS-treated macrophages.

Bioactive compounds from cardamom may be promising therapeutic agents against periodontal disease.

METHOD

The convenient literatures, sampling technique and interview schedule was used in the study.

INTRODUCTION

Periodontal infection is a critical open wellbeing issue since of its tall predominance and rate around the world. Periodontal malady is a gather of dangerous incendiary clutters started by microbes that leads to the misfortune of tooth back. Whereas gingivitis is a gentle and reversible shape of

periodontal illness, serious periodontitis causes changeless harms to tooth-supporting tissues, counting the alveolar bone, and may lead to tooth misfortune if cleared out untreated. In addition,

periodontal illness is related with a number of systemic infections or

complications, counting cardiovascular malady, diabetes, and preterm moo birth weight.

Periodontal illness is started by a particular gather of Gram-negative anaerobic microscopic organisms, which shape a biofilm in the subgingival regions. These periodontopathogens balance periodontal tissue annihilation through complex intuitive with mucosal and safe cells causing

a incessant irritation related with the generation of incendiary arbiters, counting interleukin-1 β (IL-1 β), interleukin-6 (IL-6), interleukin-8 (IL-8) and tumor rot factor-alpha (TNF- α), as well as tissue- degrading proteins such as framework metalloproteinases (MMPs).

As of late, inquire about has centered on the antibacterial and anti-

inflammatory exercises of common compounds as potential helpful specialists against verbal diseases.

Cardamom (*Elettaria cardamomum*), which is a perpetual fragrant plant customarily utilized as a

culinary fixing, is commonly developed in southern India, Sri Lanka, Tanzania, and Guatemala. This plant is considered as an imperative source of flavonoids, alkaloids, terpenoids, anthocyanins and phenolic compounds. Cardamom has been utilized for the treatment of a few disarranges, counting asthma, heartburn, and congestive jaundice. Ponders have appeared that cardamom has different pharmacological properties such as antioxidant, anti-inflammatory, anti-cancer, and antimicrobial exercises.

With respect to verbal diseases, the antibacterial action of a cardamom basic oil against *Streptococcus mutans*, the most critical cariogenic bacterium, has been already detailed. Besides, the cardamom basic oil was found to cause destruction of a *S. mutans* biofilm. To the best of our information, the potential of cardamom against periodontal contaminations has not been explored. In this think about, the

antibacterial action of two cardamom extricates (natural product and seeds) against vital periodontal pathogens was assessed. Additionally, the anti-inflammatory action of the same extricates in monocytes/macrophage models was moreover assessed.

MATERIAL

Cardamom extract

The cardamom natural product extricate (CFE) and cardamom seed extricate (CSE)

were compassionate given as a fluid concentrate by Flavex Naturextrakte GmbH (Rehlingen, Germany). Both extricates were arranged by supercritical liquid extraction with carbon dioxide.

This tender prepare extricates touchy bioactive substances clearing out no dissolvable buildups. Gas chromatography-mass spectrometry (GC-MS) performed by the producer permitted to decide the nitty gritty composition in unstable compounds.

RESULTS

the chemical composition in unstable compounds of CFE and CSE was moderately comparable.

The most transcendent compounds were terpinyl acetic acid derivation (48.7% and 50.1%, individually) and 1,8-cineol (21.6 and 21.9%, respectively).

The MIC and MBC values of CFE and CSE against vital periodontal pathogens were decided utilizing a broth microdilution test. In common, the natural product and seed cardamom extricates appeared moderately comparable antibacterial action.

DISCUSSION

Medicinal plants have been utilized for centuries for their useful properties particularly against human maladies due to their tall substance in bioactive compounds. More especially, cardamom (*E. cardamomum*), having a place to the family of Zingiberaceae and known as the «Queen of spices», has been detailed to have a few pharmacological properties, counting antimicrobial action.

CONCLUSION

This considers given test prove recommending that cardamom extricates have a restorative potential against periodontal contaminations through their antibacterial and anti-inflammatory properties.

REFERENCES

Oral inflammatory diseases and systemic inflammation: role of the macrophage.

Periodontal disease immunology: 'double indemnity' in protecting the host.

The role of matrix metalloproteinases in the oral environment.

Chemical and biological evaluation of essential oils from cardamom species.