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Alpiniaofficinarum - an Anti-Ulcer and Cough suppressant

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Abstract:
Galangal aherb of Zingiberaceae family with two main species, greater and lesser Galangal, are found in Indonesia, China,andcultivated globally. It'srhizome is widely used traditionally to treatdigestive disorders, ulcers, and sea ailments. The herb's ethanolic extract has been found to have anti-ulcer, antigastricsecretion, and cytoprotective properties in rats, making it a potential therapeutic option for gastrointestinal disorders. Rhizome's ethanolic extracts also reported to cause cytological and biochemical changes in rats induced by cyclophosphamide. The active compoundacetate 1'-acetoxicaviol,present in rhizome extract, along with anti-feedants, has potential insecticidal use. Further research is necessary to identify efficacy and safety of these compounds in pest control. Overall, the traditional use of galangal in medicine make it a promising candidate for further investigation and development of alternative treatments for digestive disorders. Additionally, the insecticidal properties of the extract's active compounds could offer sustainable, eco-friendly alternative to conventional insecticides.

Keywords: *Alpiniaofficinarum*, Lesser Galangal, antiulcer, cough suppressant, insecticide

I. Introduction:

Lesser galangal, scientifically known as *Alpiniaofficinarum*, is a member of ginger family and is extensively cultivated in Southeast Asia. It's origin can be traced back to China, from where it derived its name. This herbaceous plant can grow up to 1.5 to 2 meters in height with long leaves and reddish-white flowers that adds aesthetic appeal. The rhizomes of the lesser galangal plant, commonly known as galangal, are highly valued for their sweet and spicy flavor as well as their aromatic scent. They are an essential ingredient in many Asian cuisines, especially in curries and perfumes. Galangal was also widely used in European countries in the past.[7,1]

Apart from its culinary uses, galangal is also known for its medicinal properties. It has been used for centuries in traditional medicine to treatwide range of ailments, such as gastrointestinal problems, respiratory infections, and inflammation. The root extract of galangal has been found to possess potent antimicrobial, antioxidant, and anti-inflammatory properties, which makes it a popular herbal remedy in many parts of the world.[9] lesser galangal is a versatile plant that offers both culinary and medicinal benefits. Its rhizomes are prized for their unique flavor and aroma and have been used in various dishes and perfumes. The plant's extract has also been found to possess several therapeutic properties, making it a valuable herb in traditional medicine.[2]

Synonyms:

Galanga, East India root, Chinese ginger,Rasna, Galangal rhizome, Lesser galangal.[11]

Chemical constituent:

The green rhizomes contains 0.6% to 1.5% of volatile oil. The oil contains methycinnamate-48%, cineole 25%, camphor and pinene. It also contains resin, oily pungent galangol, alpinol, yellow crystalline substance known as galangin, and di-oxyflavanol. The anti-inflammatory triterpene compounds reports are sorghumol and bochmerd.[8,10]

Anti-ulcer property:

Alpiniagalanga, commonly used in traditional medicine, has been found to possess several therapeutic properties. The ethanolic extract of *Alpiniagalanga*has been shown to have gastric antisecretory, antiulcer, and cytoprotective properties in rats, which could be responsible for its effectiveness in treating stomach disorders in Arabian and Unani systems of medicine.

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Additionally, studies have reported the effectiveness of *Alpiniagalanga*in treating cytological and biochemical changes induced by cyclophosphamide in mice, indicating its potential use as an anti-cancer agent. The rhizomes of *Alpiniagalanga*have been used as a spice and in traditional medicine for the treatment of various conditions, including dyspepsia, gastralgia, sea sickness, and abdominal colic, and as an anti-inflammatory, antineoplastic, digestive, and tonic. Furthermore, *Alpiniagalanga*also been found to possess insecticidal activity, with 1'-acetoxychavicol acetate identified as the active compound. This compound has a molecular formula of $C_{13}H_{14}O_4$ and could potentially be used as an antifeedant.[3,4,5]

Theextract had a significant impact on reducing gastric secretion and protecting the stomach's lining, indicating it'spotential as a natural treatment for stomach disorders, including ulcers. These effects may be attributed to the presence of bioactive compounds in the extract with antioxidant and anti-inflammatory properties. The galangal rhizome may have potential in treating stomach disorders and as an adjunct to chemotherapy treatments.[6]

Overall, these findings suggest that *Alpiniagalanga*could be a valuable source of natural compounds with a wide range of therapeutic applications. Further research is needed to fully explore the potential of *Alpiniagalanga*for treatment of various diseases and identify additional bioactive compounds.

Cough suppressant (Antitussive):

There is a lack of direct evidence on cough suppressant effects of lesser galangal. It is important to note that some traditional systems of medicine, such as Ayurveda and traditional Chinese medicine, may recommend galangal for respiratory symptoms including coughs. However, it's essential to recognize that traditional uses and anecdotal evidence do not substitute for scientific validation.

Lesser galangal contains various bioactive compounds, including flavonoids, terpenoids, and phenolic compounds. Their diverse pharmacological properties may contribute to the potential cough suppressant effects of lesser galangal.

It's important to consider that the pharmacological effects of natural products often result from the combined actions of multiple compounds working synergistically. In the case of lesser galangal, the collective action of its various constituents may contribute to its overall cough suppressant potential.[12,]

However, it is crucial to emphasize that further scientific research is needed to determine the specific pharmacological mechanisms and effectiveness of lesser galangal as a cough suppressant. Controlled studies, clinical trials, and in-depth investigations are required to validate and understand its potential benefits in managing coughs.

II. Conclusion:

Lesser galangal has demonstrated gastroprotective effects and may offer a natural alternative to PPI and H2 receptor blockers for the treatment of ulcers and other gastrointestinal disorders. Overall, the traditional use of galangal in medicine and the herb's potential therapeutic properties make it a promising candidate for further investigation and development of alternative treatments for digestive disorders. Additionally, the insecticidal properties of the galangal rhizome extract's active compounds could offer sustainable and eco-friendly alternatives to conventional insecticides.

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