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Article *in* Journal of Medicinal Plant Research · December 2011

DOI: 10.5897/JMPR11.525

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Journal of Medicinal Plants Research Vol. 5(29), pp. 6578-6580, 9 December, 2011
Available online at http://www.academicjournals.org/JMPR
ISSN 1996-0875 ©2011 Academic Journals
DOI: 10.5897/JMPR11.525

Short Communication

Medicinal potentials of *Alpinia galanga*

E. Mohiuudin[1], M. Akram[1]*, Naveed Akhtar[2], H. M. Asif[1], Pervaiz Akhtar Shah[3], Tariq Saeed[3], Arshad Mahmood[4] and Nadia Shamshad Malik[5]

[1]Faculty of Eastern Medicine, Hamdard University, Karachi, Pakistan.
[2]Faculty of Pharmacy and Alternative Medicine, The Islamia University of Bahawalpur Pakistan.
[3]University College of Pharmacy, The University of Punjab Lahore, Pakistan.
[4]Department of Pharmaceutical Sciences, COMSATS Institute of Information Technology, Abbottabad, Pakistan.
[5]School of Pharmacy, The University of Lahore, Islamabad Campus, Islamabad, Pakistan.

Accepted 6 October, 2011

Alpinia galangal **has anti-inflammatory properties and is useful in rheumatism and rheumatoid arthritis. It also contains enzymes, polysaccharides and nutrients, which exhibit antibacterial effect and acts against streptococci, staphylococci and coliform bacteria. These properties are believed to be mediated by different phytochemicals found in the plant, acting singly or in concert. This paper critically reviews the present state of scientific knowledge on the medicinal potentials of *A. galanga.***

Key words: *Alpinia galanga*, medicinal uses, active constituents.

INTRODUCTION

Alpinia galangal belongs to Zingiberaceae family. It occurs in Pakistan, Indonesia Europe-Mediterranean. Part used are Rhizone and Fruit (Usmanghani et al., 2007; Nutrasanus, 2004; Gujral et al., 1961; Usmanghani and Alam, 1997). This plant is commonly known as greater galangal (Satyavati et al., 1976). It is 6 to 7 ft. high and bears perennial rhizomes which are deep orange-brown in colour, aromatic, pungent and bitter. The fruits are about 1/2" long, constricted in the middle and contain 3 to 6 seeds (The Wealth of India, 1948). The leaves are lanceolate while the flowers are small greenish white (Kirtikar and Basu, 1933). Rhizomes are cut into pieces and the species are known as greater *galangal*. The rhizome of 'lesser *galangal*', *Alpinia* officinarum, is smaller and reddish brown in colour and has a stronger odour and taste (Pichichero, 1992). The temperament of this drug is dry and warm in the second order (Usmanghani and Alam, 1997; Kabiruddin, 1937).

*Corresponding author. E-mail: makram_0451@yahoo.com.

METHODOLOGY

Relevant articles were searched using the terms *A. galanga*, active constituents, medicinal activity.

OBJECTIVE

To review the published literature on *A. galangal.*

Principal constituent

Volatile oil (0.5 to 1.0%), galangal, galangin, kaempferide, dihydroxy flavonol, acetoxychavicol acetate and acetoxyeugenol acetate and diarylheptanoids (III, IV and V) (Karnick, 1994).

Chemistry

There are two chemical principles in galangal that have been studied quite intensely over the past few years, the flavonoid galangin and the phenylpropanoid

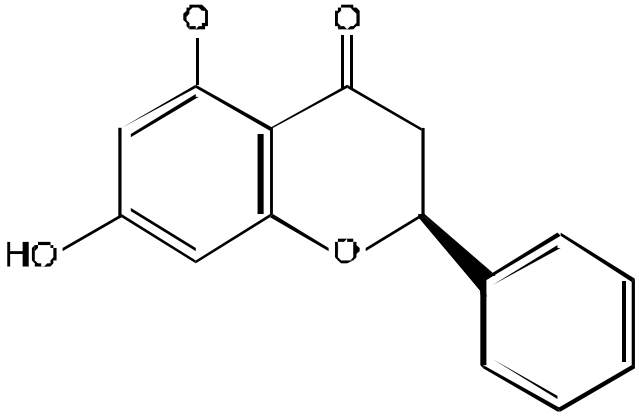

Figure 1. Galangin-Galangin (3, 5, 7-trihydroxyflavone) (V).

1'-acetoxychaovicol acetate. A review of these two more researched constituents is as follows: Galangin-Galangin (3, 5, 7- trihydroxyflavone) (V) (Figure 1) is a flavonoid with multiple biological activities (Rastogi and Mehrotra, 1993).

Medicinal uses

A. galangal is useful against lumbago, rheumatic pains, sore throat, pain in the chest, diabetes, tubercular glands, diseases of the kidney, bronchitis and catarrhal affections (Wighard and Gottfried, 1988). It is mainly utilized in the treatment for digestion and a quick reliever of pain, especially angina, heart attack and gall bladder attacks and effects as a reliever of heart pain (Grieve, 1971). Its effects on dyspepsia and as a digestive aid are elaborated. In addition to a stimulant and carminative, especially useful in flatulence, dyspepsia, vomiting and stomach sickness (Ciolino and Yeh, 1999). Several recent studies with this flavonoid suggest that it may have a potent anti-cancer effect, specifically through inhibition of the detoxification enzyme CYP1A1 and modulation of the aryl hydrocarbon receptor (Quadri et al., 2000). The implication with this type of research is that this flavonoid exerts a protective effect against the carcinogenic potential of overcooked, char-grilled foods. Galangin has also been shown to be a potent preserver of the endogenous free radical scavenger glutathione, thereby playing another anti-carcinogenic role (Cipak et al., 2003). Recent research has also uncovered several mechanisms by which this particular flavonoid exerts a positive effect in the prevention of heart disease. Galangin has a proven anti-oxidative effect on endothelial tissues and acts to help preserve other protective antioxidants such as vitamins E and C and other flavonoids, in this function it also serves to prevent lipid peroxidation (Kaneko and Baba, 1999).

Galangin also exerts a strong inhibitory effect on the cyclo-oxygenase family of enzymes; this provides a strong cardioprotective effect by inhibiting the aggregation of platelets, as well as providing a consistent systemic anti-inflammatory effect (Evans, 2002). These are only a few of the known applications for this incredible flavonoid. The phytochemical lists this constituent are utilized as anti-inflammatory, anti-mutagenic, anti-oxidant, anti-viral, cancer preventive and as an aromatase inhibitor. This inhibitory activity is an aromatase inhibitor specifically to prevent the conversion of testosterone to estrogen in both men and women (Pichichero, 1992).

Pharmacological activity

The clinical study was conducted on Lozin (Herbal coded tablet) that contains different medicinal herbs including *A. galanga*, for treatment of tonsillitis and pharyngitis. Study was conducted in Shifa ul Mulk Memorial Hospital, Hamdard University, Karachi. The selected drug was administered to attain a successful response to tonsillitis and pharyngitis. Clinical study of *A. galanga* shows that it exhibits the anti-bacterial effects. It was concluded that Lozin is remarkably effective for the treatment of tonsillitis and pharyngitis (Ejaz, 2011).

Conclusion

A. galanga is usually used as carminative, stomachic, stimulant, expectorant, aphrodisiac, diuretic and anti-spasmodic. It concludes that future research must aim at characterizing the active principle(s) responsible for each effect and determining if they act singly or synergistically with other principles present in the plant.

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