

Antioxidant and antibacterial activities of oleoresins isolated from nine *Curcuma* species

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Abstract

Oleoresins were extracted from rhizomes of nine starchy *Curcuma* species (*Curcuma aeruginosa*, *Curcuma. amada*, *Curcuma aromatica*, *Curcuma brog*, *Curcume caesia*, *Curcuma malabarica*, *Curcuma rakthakanta*, *Curcuma sylvatica* and *Curcuma zedoaria*) using dichloromethane and evaluated for antioxidant and antibacterial activity. The yield of oleoresin in the different species ranged from 4 to 15 % dry weight. Total phenols varied from 23 – 100 mg gallic acid equivalents (GAE) /g oleoresin. Oleoresins from all the species exhibited high DPPH radical scavenging activity and ferric reducing power, which had good correlation with phenolic content. The oleoresins inhibited both g +ve (*S. aureus* and *B. subtilis*) and g-ve (*E. coli*) bacteria. Maximum sensitivity was observed in the case of *B. subtilis*. The results indicated that the oleoresins from these species (most of which are unutilized) would have good potential as additives for food and medicinal applications.

Keywords: *Curcuma* species; oleoresin; DPPH, Ferric reducing power; antibacterial

Introduction

The genus *Curcuma* (family Zingiberaceae) comprises of more than 80 species of rhizomatous herbs which are widely used in traditional systems of medicines such as Ayurveda, Siddha, Unani, Homeopathy and Naturopathy. They occur in wild and cultivated forms and are widely distributed throughout the tropics of Asia, Africa and Australia. The most common species is *C.longa* or turmeric, which is used as a natural food colourant and as an ingredient in various medicinal formulations. (Naz et al, 2010, Mishra et al, 1997, Jayaprakasha et al, 2002, Sacchetti et al, 2005). The rhizomes of other *Curcuma* species (*C. aeruginosa*, *C. amada*, *C. aromatica*, *C. brog*, *C. caesia*, *C. malabarica*, *C. rakthakanta*, *C. sylvatica* and *C. zedoaria*) are also pharmacologically important but several of these species have not been exploited commercially. These species are active ingredients of traditional herbal medicines (jamu, ukon, yujin, gajutsu, ezhu) of Indonesia, Japan and China. The spec-