

# Postharvest control of fruit rot of mangosteen by plant extracts from Zingiberaceae family

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## Abstract

Fungi causing fruit rot of mangosteen were isolated from the calyx, fruit peel, and petals of harvested fruits. Isolates were identified as *Colletotrichum gloeosporioides*, *Lasiodiplodia theobromae*, *Pestalotiopsis* sp., and *Phomopsis* sp. Antifungal bioassays of rhizome crude extracts of the Zingiberaceae family, *Alpinia galanga*, *Zingiber montanum*, *Curcuma longa*, and *C. zedoaria* were tested against the postharvest pathogens. The antifungal activity of the lipophilic phase of the crude extracts was determined by a micro dilution technique. *A. galanga* extracts were found to be the most effective, with a minimum inhibitory concentration (MIC) of 78 µg/ml against *C. gloeosporioides*. Fraction sample B from column chromatography showed spore inhibition at a MIC of 1,250 µg/ml. A 10,000 ppm extract in 5% methanol was most effective in controlling fruit rot caused by *Phomopsis* sp., and wrapping fruits with soaked extract paper decreased disease incidence caused by *Pestalotiopsis* sp.