Asian Symposium on Medicinal Plants, Spices and Other Natural Products XVI- 2018

Bioactivity studies of Citrullus lanatus fruit pulp

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Citrullus lanatus (Watermelon) is a popular edible fruit in Sri Lanka. Despite their high harvest, these fruits are only consumed locally, and crops are underutilized. The aim is to identify bioactive compounds present in the fruit pulp. Fruit pulp was blended and filtered. The residue was sequentially extracted into n-hexane (RH), ethyl acetate (RE) and methanol (RM) while the filtrate was sequentially partitioned with n-hexane (JH) and ethyl acetate (JE). Remaining aqueous phase was freeze dried (JW). Extracts were subjected to allelopathic activity against *Lactuca sativa*, pancreatic α -amylase inhibitory activity, anticandidal activity against Candida albicans, C. glabrata, C. krusei, C. parapsilosis, and C. tropicalis, TLC bioautography against Cladosporium cladosporioides, antioxidant activity against DPPH radical scavenging and brine shrimp lethality against Artemia salina. All the assays were triplicated. RH extract was not tested against allelopathic, anticandidal and brine shrimp lethality assays due to its low yield.JH and JE extracts inhibited seed germination with IC50 values of 395 and 498 ppm respectively. RE and RM extracts exhibited inhibitory effects on both shoot and root growth. However, their IC₅₀ values lay above 1000 ppm. None of the extracts inhibited a-amylase at 1000 ppm. None of the extracts were active against all five Candida spp. tested even at 5000 ppm.RH, RE, JH and JE extracts were active against C. cladosporioides. All the extracts had low antioxidant properties. The lowest IC₅₀ value was 1012 ppm from JE. All the other extracts had IC₅₀ values higher than even 4000 ppm. RM and JW were not cytotoxic even at 2500 ppm. JE extract was 100% lethal to the brine shrimps at 2500 ppm. IC 50 values of RE and JH were above 2500 ppm. The pulp of C. lanatus showed good activity only for the phytotoxic assay. In order to identify chemical constituents in extracts, LC-MS studies are in progress.

Keywords: allelopathy; bioactivity; Citrullus lanatus; fruit

PP 021