

Antifungal Bioassay and Preliminary Phytochemical Analysis of Extracts of *Curcuma longa*

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Abstract: The therapeutic value of *Curcuma longa* commonly known as turmeric has been recognized in different systems of traditional medicine for the treatment of diseases and human ailments. It belongs to the family zingiberaceae and contains several phyto constituents. Several studies using modern techniques have authenticated its use as anti inflammatory, antimicrobial, antifertility, anticancer, antidiabetic and antioxidant. Most importantly, the plant has shown to possess anti HIV activity which could be of great value to combat AIDS particularly in third world countries. The aim of this study was to find the antifungal activity of the extract of *Curcuma longa* root obtained by sequential extraction using solvents of varying polarity. The plant material (root) was dried at room temperature, powdered in an electric grinder and extracted with dichloromethane followed by ethyl acetate and ethanol. Antifungal bioassay was done using agar well diffusion method against *Aspergillus sp*, *Trichoderma sp*, *Alternaria sp*, *Collectrichum sp* and *Fusarium sp*. Mancozeb was used at 0.02g/10ml concentration as positive control and each solvent was as negative control. Each solvent was used to dissolve the crude extract. The plates were incubated at 37⁰C and diameter of inhibition zones were measured at 24, 48, 72 and 96 hours of incubation. All samples were tested twice and mean values were recorded. Crude extract was used as 10 mg/200ml. The root extracts of *Curcuma longa* indicated the presence of tannins, terpenoids, flavanoids and saponins and does not indicate the presence of alkaloids, pholobatannins, steroids and cardiac glycosides. Ethanol crude extract of roots of *Curcuma longa* showed highest inhibition zone against *Trichoderma sp* (28.5mm). This was close to the inhibition zone of mancozeb (27mm). A 22.5mm inhibition zone was observed for the ethanol crude extract of root of *Curcuma longa* against *Alternaria sp*. Further studies should be directed towards the isolation of these bio active compounds and investigation of their potential in the treatment of fungal infections.

Keywords: *Curcuma longa*, Antifungal Bioassay, Inhibition zone, Phytochemical analysis