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Antifungal and antibacterial activity of *Carissa carandas* Linn.

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SUMMARY

The *in vitro* antibacterial and antifungal activity of methanolic and petroleum ether extracts of unripe roots and fruits of *Carissa carandas* has been evaluated using disc diffusion method against *Staphylococcus aureus, Bacilus pumulis* and *Vibrio chlorae* bacterial strain, while turbidity method against *C. albicans, A. oryzae* and *T. azoli* fungus strains. Comparatively, extracts showed significant antifungal activity with specific standard (fluconazole) and moderate antibacterial activity with specific standard (ciprofloxacin).

Key words : *Carissa carandas*, Antibacterial, Antifungal

Carissa carandas Linn. (Family : Apocynaceae) is a climbing shrub, usually growing to 10 or 15 feet (3-5 m) high. In Jharkhand and other states, it is commonly known as Karunda or Jasmin flower Carissa. Karunda may bloom and fruit off throughout the year. *Carissa* a genus of about 32 species is distributed mostly in the warmer parts. Of the 8 Indian species, 3 are of economic importance. It grows from sea level to 6000 feet and requirement is fully exposure to sun. For use, unripe fruits are collected from mid May to mid July. Ripening season is August and September (Vaidyaratnam and Arya, 1994).

MATERIALS AND METHODS

Bacteria's used for determination of antibacterial activity:

The bacterial strains used for this study are mentioned in Table 1. The details of fungal strains used for determination are given in Table 3. Strains were from various parts of India and Abroad. They were maintained at slant or stab cultures in nutrient agar media at 4°C temperature in refrigerator (Rhayour *et al.*, 2003).

Standard antibacterial agent used for comparison of antibacterial activity

Pure Ciprofloxacin (Dr. Reddy's Lab.) were used as the standard antibacterial agent 100 mg dissolved in 20 ml distilled water and filtered, each of two stock solution (2 mg/ml and 40 mg/ml) were prepared by proper dilution with distilled water.

Preparation of inoculum:

The preserve bacteria were cultured and sub-cultured as pure colonies as follows:

– One loopful (2 mm) of each bacterial suspension was inoculated in 5 ml of nutrient broth and all test tubes were incubated at 37°C for 24 hours.

– The overnight grown nutrient broth culture of each test organism was used for streaking over nutrient agar plates and subjected to incubation at 37°C for 24 hours and the same process was repeated until pure isolated colonies were obtained.

– From these isolated, colonies fresh sterile nutrient broth and media were re-incubated at 37 °C for 24 hours. These nutrient broth cultures served as inoculum for determination of anti-bacterial activities of the extract (Bagamboula *et al.*, 2003).

Determination of minimum inhibition concentration (MIC):

Disc diffusion techniques:

– Stock solution of root and fruit extract of *Carissa carandas* of 1 mg/ml and 10 mg/ml were prepared with sterile Dimethyl Sulphoxide (DMSO) and measured volume of stock solutions were dispensed in the conical flask to prepare concentration of 250, 500, 750, 1000 and 1500 ìg/ml of extracts.

– The sterile Petri plates were poured with molten agar medium and allowed to be solidified.

– The suspension of test organism or culture were flooded on the solidified nutrient agar medium and kept for 30 minutes in same position for proper inoculation.

– Location for each test extract concentration was marked at the back of Agar containing petriplate.

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