

### OP 3

#### **Antibacterial activity of *Caryota urens* (fishtail palm) against selected pathogenic microorganisms that can cause skin and soft tissue infections**

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**Background:** Plants have been used to treat skin and tissue infections since ancient times. Traditional Knowledge about medicinal plants serves as the foundation for the development of plant-based medications. *Caryota urens* plant belongs to Arecaceae family, which is used to treat a wide range of diseases, including stomach ulcers, boils, and urinary disorders.

**Objective:** To compare the antibacterial activity of aqueous extracts of *C. urens* leaves, immature fruits, and bark against selected bacteria that can cause skin and soft tissue infections.

**Methods & Materials:** To prepare 100 mL of aqueous extracts of the immature fruits, leaves, and bark of the *C. urens* plant, 20 g of air-dried, ground plant materials were boiled for 30 minutes using distilled water at 80 °C. The *in vitro* antibacterial potency was assessed against *Staphylococcus aureus* (ATCC 25923), *Streptococcus pyogenes* (clinical isolate), *E. coli* (ATCC 25922), and *Pseudomonas aeruginosa* (ATCC 10662) using the well diffusion assay. Minimum inhibitory concentrations (MIC) were determined by the broth dilution method.

**Results:** Immature fruits and leaf extracts showed noticeable activity against tested bacteria. The immature fruit showed the highest activity, and the bark showed the lowest activity. The zone of inhibition of immature fruit extract was in the range of 9-19 mm against all bacteria. The bark extract had the lowest antibacterial activity against the tested strains. Gram-positive bacteria were most effectively inhibited by all three plant extracts. *S. aureus* was the most susceptible to all three plant extracts, while *E. coli* was the least susceptible. The mean MIC values for immature fruit extract against all tested bacteria were in the range of 74.67-106.67 µg/mL.

**Conclusion:** Aqueous extracts of *C. urens* immature fruits and leaf extracts have potential antibacterial activity. The findings of this study could be useful in the discovery of novel antibacterial drugs derived from plants.

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