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Evaluation of inhibitory zone diameter (IZD) of crude *Spondias mombin (Linn)* extracts against 30 infectious clinical and environmental isolates

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The purpose of this research work is to evaluate the inhibitory zone diameter (IZD) (anti-bacterial and antifungal activity) of crude *Spondias mombin* extracts against thirty infectious clinical and environmental organisms. The root, leaf and stem-bark of *S. mombin* were harvested and air-dried. The dried *S. mombin* was milled into powdered form using manual grinder. Powdered *S. mombin* (1 kg) each of the different *S. mombin* parts was extracted with 3 L of 70% (v/v) ethanol, ethyl acetate and distilled water for 72 h at room temperature. The antimicrobial assay of crude *Spondias mombin* extracts on the test bacteria was carried out by the agar diffusion method. A 0.1 ml of 1:10,000 dilutions (equivalent to 106 cfu/ml) of fresh overnight broth culture of the test bacteria was seeded on molten Mueller-Hinton and agar plate. Using a sterile cork borer of 6 mm diameter, equidistant wells was made in the agar. One millimeter of the various re-suspended extracts (7.5, 15, 30 and 60 mg/ml) was introduced into the wells. Ofloxacin (5 µg) was used as control. The plates were then incubated at 37oC for 24 to 48 hours. Antifungal assay of crude root, leaf, and stem bark of *Spondias mombin* extracts was done using agar well diffusion method. A 5-day old fungal culture on potato dextrose agar (PDA) was flooded with 2 ml of sterile distilled water containing 3% glycerol. The spores were harvested by scraping with a sterile inoculating loop. Sterile PDA plates were inoculated with 0.1 ml of the fungal spore suspension using the spread plate technique. Five wells were bored on the potato dextrose agar (PDA) plates using a 6 mm sterile cork borer. The plates were allowed to stand on the bench for 1 hour before incubating at 25°C for 5 days. Diameter of zones of growth inhibition was then measured in millimeter with a vernier caliper. Aqueous leaf extract of *S. mombin* had the zone of inhibition of 23 mm against *B. cepacia* at 60 mg/ml. The aqueous stem bark and root of *S. mombin* extracts at 60 mg/ml had the highest zone of inhibition of 23 mm each against C. koseri and K. ozaenae. However, the aqueous Stem bark extract of *S. mombin* did not show any antibacterial activity against *M. abscessus* neither did the aqueous root extract show antibacterial activity against E. coli. This study revealed that the plant extracts possessed antibacterial and antifungal activities against some highly infectious clinical and environmental pathogens which justified their use in ethnomedicine for treatment of infectious diseases.

Biography

Oludare Temitope Osuntokun is a Lecturer and Researcher in the Department of Microbiology, Faculty of Science, Adekunle Ajasin University, Akungba Akoko, Ondo State, Nigeria. He has published up to 44 research articles and has attended various academic seminar and conferences. He has 82 research articles on Research-Gate website. He has obtained his degree in Microbiology and a Master's degree in Medical/Pharmaceutical Microbiology and PhD in Phytomedicine, Pharmaceutical/Medical Microbiology from Obafemi Awolowo, University, Ife-ile, Osun state, Nigeria. He is an Editor to various journals like *Donnish Journal of Microbiology and Biotechnology Research, Elite Journal of Microbiology and Biotechnology Research* and Editor-in-Chief of *Advance Cytology and Pathology Journal*.

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