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Extraction and Antibacterial Studies of Oil from Three Mango Kernel Obtained from Makurdi, Nigeria

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Abstract : The ability of bacteria to develop resistance to many antibiotics cannot be undermined, given the multifaceted health challenges in the present times. For this reason, a lot of attention is on botanicals and their products in search of new antibacterial agents. On the other hand, mango kernel oils (MKO) can be heavily valorized by taking advantage of the myriads bioactive phytochemicals it contains. Herein, we validated the use of MKO as bioactive agent against bacteria. The MKOs for the study were extracted by soxhlet means with ethanol and hexane for 4 h from 3 different mango kernels, namely; 'local' (sample A), 'julie' (sample B), and 'john' (sample C). Prior to the extraction, ground fine particles of the kernels were obtained from the seed kernels dried in oven at 100 °C for 8 h. Hexane gave higher yield of the oils than ethanol. It was also qualitatively confirmed that the mango kernel oils contain some phytochemicals such as phenol, quinone, saponin, and terpenoid. The results of the antibacterial activities of the MKO against both gram positive (Staphylococcus aureus) and gram negative (Pseudomonas aeruginosa) at different concentrations showed that the oils extracted with ethanol gave better antibacterial properties than those of the hexane. More so, the bioactivities were best with the local mango kernel oil. Indeed this work has completely validated the previous claim that MKOs are effective antibacterial agents. Thus, these oils (especially the ethanol-derived ones) can be used as bacteriostatic and antibacterial agents in say food, cosmetics, and allied industries.

Keywords : bacteria, mango, kernel, oil, phytochemicals
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