

CHEMICAL COMPOSITION AND ANTI-MICROBIAL EVALUATION OF VARIOUS FRACTIONS OF THE METHANOL SEED EXTRACT OF *CARICA PAPAYA* L (CARICACEAE)

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ABSTRACT

Carica papaya is used in traditional medicine in the management of malaria, typhoid fever and other infectious diseases. Hence, the objectives of this study were to determine the chemical constituents of the methanol, petroleum ether and ethyl acetate fractions of the methanol seed extract of *Carica papaya*, as well as evaluate the antibacterial activity against *Staphylococcus aureus*, *Klebsiella pneumonia*, *Bacillus subtilis*, *Escherichia coli*, *Candida albican* and *Microsporum audiounii*. Chemical constituents were assessed using Gas Chromatography-Mass Spectrometric (GC/MS) technique and mass spectra of the compounds were matched with the National Institute of Standard and Technology (NIST) library. The antibacterial activity was evaluated using the agar well diffusion technique, where the inhibition zone diameters (IZD) and minimum inhibitory concentrations (MICs) of the fractions were determined. Gas Chromatography-Mass Spectrometric (GC/MS) technique revealed the presence of useful chemical constituents in the various fractions of the methanol seed extract. The fractions showed activity against *B. Subtilis* with MICs of 0.08 mg/mL, 0.2 mg/mL and 0.4 mg/mL for methanol, petroleum ether and ethyl acetate fractions respectively; followed by *S. aureus* with MICs of 0.1 mg/mL, 0.4 mg/mL and 0.6 mg/mL for methanol, petroleum ether and ethyl acetate fractions respectively; followed by *E. coli* with MICs 0.2 mg/mL, 0.6 mg/mL and 0.8 mg/mL for methanol, petroleum ether and ethyl acetate fractions respectively. The least among the bacteria was observed with *K. pneumonia* with MICs of 0.4 mg/mL, 0.8 mg/mL and 1.0 mg/mL for the methanol, petroleum ether and ethyl acetate fractions respectively. The fractions exhibited low activity against the tested fungi. *C. albican* had MICs of 0.4 mg/mL, 1.0 mg/mL and 0.8 mg/mL for the methanol, petroleum ether and ethyl acetate fractions respectively; while *M. audiounii* had MICs of 0.8 mg/mL, 2 mg/mL and 1.0 mg/mL for methanol, petroleum ether and ethyl acetate fractions respectively. This study revealed the presence of useful chemical constituents in the various fractions (methanol, petroleum ether and ethyl acetate), as well as, authenticated the ethnomedicinal use of the seeds of *C. papaya* in the management of various infectious diseases.

Keywords: Herb, Infectious diseases, Phytochemicals, Enzymes.