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Optimizing Tannin Extraction for Antibacterial Activity of *Acacia nilotica*[#]

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Abstract: Sudanese have used seeds of *Acacia nilotica* subsp *nilotica* (family Fabaceae) as folk medicine for various diseases especially against bacteria. The objectives of this work were to optimise antibacterial compounds extraction of the seeds, as determined by inhibition zones of the microbial activity, i.e. *Staphylococcus aureus, Escherichia coli,* and *Vibrio harveyi*. The aqueous acetone extract of the seeds in powder form was separated using Sephadex LH 20, giving 2 fractions, namely a fraction that was eluted with ethanol and a fraction that was retained in the Sephadex and further eluted with acetone. Ethanol fraction was confirmed as low molecular weight of tannins while the acetone fraction was tannins of higher molecular weight. Effectiveness of the extracts toward the three bacteria were shown by ethanol extract at low concentration (400 ppm), but at higher concentration (up to 1000 ppm), the acetone extracts were more effective. Zone of inhibition of the ethanol fraction varied from 0.1 to 0.4 cm, and that of acetone fraction was from 0.1 to 0.55 cm. LD_{50} toward *Artemia salina* of the crude extract was found to be 19.7 mg/kg, indicating a sufficiently high toxicity. This work suggested how to get more effective protein binding substance against pathogenic bacteria from *A nilotica* seeds.

Keywords*: Acacia nilotica* seeds, antibacterial activity, *Escherichia coli*, medicinal plants, *Staphylococcus aureus, Vibrio harveyi*

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