

## ABSTRACT

The bark of the cinnamon tree (*Cinnamomum cassia*) is a popular culinary spice. It is also used in traditional medicine to maintain health and prevent disease. The antioxidant and antibacterial activity of *C. cassia* was investigated using various assays. *C. cassia* bark was sequentially extracted with three solvents of varying polarity. In the context of phytochemical screening, all the three extracts exhibited positive results for the presence of constituents like alkaloids, flavanoids, terpenoids, saponins, tannins and glycoside. The extracts were tested using the Agar well Diffusion method for their antimicrobial activity against gram positive and negative bacteria. The gram positive bacteria used were *Bacillus cereus*, *Enterococcus faecalis* and *Streptococcus pyogenes* and gram negative bacteria used were *Escherichia coli*, *Salmonella bongori* and *Pseudomonas aeruginosa*. The acetone extract of *C. cassia* exhibited the largest zone of inhibition compared to methanol and ethanol extract. The methanol extract on the other hand recorded the highest total phenolic and flavanoid content when compared against ethanol and acetone extracts. Ethanol extracts recorded the highest DPPH radical scavenging activity compared to the other extracts, with the highest activity of 88.26 % whereas methanol extract had the highest ABTS radical scavenging activity compared to the other extracts, with the highest activity of 65.40 %. Out of the 3 different concentrations worked on, the methanolic extract of the bark of *C. cassia* at 250 mg/kg showed significant antidiabetic activity against STZ-induced diabetes mellitus in rats. The individual or synergistic activity of the phytoconstituents of the plant maybe the contributing effect of the antidiabetic activity. At the end of this study, glibenclamide reduced the glucose levels from  $10.55 \pm 0.45$  to  $6.45 \pm 0.41$ , whereas *C. cassia* 500 mg/kg reduced the glucose levels from  $12.17 \pm 0.40$  to  $8.85 \pm 0.69$ .