

ABSTRACT

Recent years have witnessed a revival of the drug discovery of drugs from medicinal plants for the maintenance of health in all parts of the world. The aim of this work was to investigate 4 plants belonging to 4 families (*Calotropis gigantean*, *Mimosa pudica*, *Achyranthes aspera* and *Hibiscus rosa-siensis* variety: *Kalyani*), which were collected from different places in Bangladesh (Faridpur) for their *in vitro* antibacterial, antioxidant and toxicological evaluation.

The 4 plants (leaves) were extracted with methanol and chloroform to yield 8 extracts by Soxhlet extraction. Antimicrobial activity was tested against 3 Gram-positive clinical isolates namely, *Staphylococcus aureus*, *Bacillus subtilis*, *Bacillus cereus* and 3 Gram-negative clinical isolates namely, *Escherichia coli*, *Vibrio cholerae*, *Salmonella typhi* using agar diffusion method. Determination of MIC was done against *Escherichia coli* 0157:H7 and clinical isolate of *Staphylococcus aureus* by using broth micro-dilution assay. Antioxidant activity was investigated by measuring the scavenging activity of the DPPH (1, 1-diphenyl-2-picrylhydrazyl) radical. Evaluation for *in vitro* toxicological screening was done against MDCK (Madin-Darby Kanine Kidney) cells by using an established microtiter plate assay based on cellular staining with trypan blue.

None of the crude extracts showed growth inhibition against the test microorganisms. In addition, the methanol extracts of *Calotropis gigantean*, *Mimosa pudica*, *Hibiscus rosa-siensis* (Variety: *Kalyani*) and *Achyranthes aspera* exhibited a great antioxidant effect at 500 µg/ml compared with the effect of three standards of Ascorbic acid, BHT (Butylated hydroxyl toluene) and Propyl Gallate at this concentration. Notable cell death was observed for methanol extract from *Calotropis gigantean* and *Mimosa pudica* while the methanol extracts of *Hibiscus rosa-siensis* (Variety: *Kalyani*) and *Achyranthes aspera* provided viable condition for the growth of MDCK cell as it demonstrates similar appearances to that of untreated MDCK control.

The results will guide the selection of some plant species for further pharmacological and phytochemical investigations.