

Evaluation of Antioxidant, Cytotoxic and Antibacterial Potential of *Allium cepa* Linn [†]

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Abstract: Due to high medicinal qualities, plants are being massively explored in scientific research, and in medical and pharmaceutical industries. Hence, the present study was conducted to determine the antioxidant, cytotoxic and antibacterial properties of *Allium cepa* Linn. The crude extracts of *A. cepa* L. showed significant antioxidant property via DPPH Free Radical Scavenging Assay and Iron Chelating Assay, of which ethyl acetate extract demonstrated the highest activity with EC₅₀ value of 41.229 µg/ml and 55.419 µg/ml respectively. Folin-Ciocalteu Reagent Test and Aluminium Chloride Colourimetric Method also revealed the superiority of ethyl acetate in extracting phenolic compounds (70.10 µg GAE/mg) and flavonoids (101.28 µg QE/mg). The cytotoxic property of the extracts was tested on human chronic myelogenous leukemia cell line (K562) via 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) Assay. Ethyl acetate extract showed good cytotoxicity against K562 cells, having IC₅₀ value of 131.46 µg/ml, 104.75 µg/ml, and 59.91 µg/ml at 24, 48 and 72 hours of incubation respectively. Qualitative screening on the antibacterial property of the extracts was carried out via Broth Microdilution Method. Ethyl acetate extract was again proved to exhibit inhibitory and bactericidal activity against *Staphylococcus aureus*, *Enterococcus faecalis*, *Pseudomonas aeruginosa*, and *Escherichia coli*.

Keywords: Antioxidant activity; Cytotoxicity; Cancer cells; Antibacterial activity.

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Conflicts of Interest

The authors declare no conflict of interest.