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Antibacterial activity, phytochemical screening and antioxidant activity of stem of *Nicotiana tabacum*

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The parts of the *Nicotiana tabacum* plant have been known to possess a wide range of biological activities. The purpose of the present study was to investigate the antibacterial activity, phytochemical screening and the antioxidant activity of aqueous and alcoholic extracts of the stem of *Nicotiana tabacum*. The antibacterial activity was observed against two gram positive bacteria (*Bacillus amyloliquefaciens*, *Staphylococcus aureus*) & two gram negative bacteria (*Escherichia coli*, *Pseudomonas aeruginosa*) in its aqueous, ethanolic, acetone and methanolic extracts by agar well diffusion method, where maximum antibacterial activity was found to be present in the methanolic and ethanolic extract against *Staphylococcus aureus* with an inhibition length of 10.667 ± 1.527 mm and 8 ± 1.00 mm, respectively. This was also observed that they has shown inhibitory effect against *Pseudomonas aeruginosa* with an inhibition length of 5.33 ± 1.154 mm in its methanolic extract, where its ethanolic extract has also shown it inhibitory effect against *Bacillus amyloliquefaciens* with an inhibition length of 4.667 ± 1.154 mm. Phytochemical screening of aqueous, ethanolic & methanolic extract have revealed the presence of saponin, flavonoids and alkaloids. Flavonoid content in stem was found to be 838 mg QE/g of extract in the 80% of ethanol extract by aluminium colometric method. Antioxidant activity was observed in order to estimate the superoxide dismutase, catalase, glutathione content, glutathione S transferase & lipid peroxidase, i.e., Malondialdehyde (MDA) content in the aqueous and methanolic extract where methanolic extract has shown a high level of antioxidant activity. The present study suggests that the stems of *Nicotiana tabacum* can be utilized as a good source of herbal drug for microbial and neurological disease.

Biography

Yash Sharma is pursuing BTech+MTech (Dual) degree course from Amity Institute of Biotechnology, Amity University, Uttar Pradesh from India. He has also published two research articles in collaboration with Helix BioGenesis Pvt. Ltd, Noida, India.

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