



Phytochemical Analysis and Antimicrobial Activity of Roots of *Withania somnifera* (L.) Dunal

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Abstract : *Withania somnifera* (L.) Dunal commonly known as 'Ashwagandha' is a widely used herb in Ayurvedic medicine. In the present study, root extracts of *Withania somnifera* were analysed for phytochemical constituents, and antimicrobial property. Antibacterial activity of root extract was tested by agar-well diffusion method against *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae*, *Proteus mirabilis*, *Pseudomonas aeruginosa* and *Salmonella paratyphi* B. The study also investigated the effect of temperature on its antibacterial activity. Qualitative phytochemical analysis revealed the presence of carbohydrates, reducing sugars, alkaloids, phytosterol, fixed oils, proteins, phenolic compounds and flavonoids. All the bacterial strains were found to be sensitive to acetone, ethyl acetate and ethanol extracts. Acetone and ethanol extracts were more effective against *Klebsiella pneumoniae*, whereas ethyl acetate extract was more effective against *Pseudomonas aeruginosa* and *Salmonella paratyphi* B. The effect of temperature on the antimicrobial potential of the root extracts of the plant remained reasonably unaffected. The present screening demonstrated that *Withania somnifera* root extract has potent antibacterial activity and a potential source of new class of antimicrobial compounds that could be useful for infectious disease chemotherapy and control.

Keywords : *Withania somnifera*, Root extract, Antibacterial activity, Thermal stability.

C.Swaminathan *et al* / International Journal of ChemTech Research, 2019,12(2): 218-222.

DOI= <http://dx.doi.org/10.20902/IJCTR.2019.120229>
