



Effect of Crude Extract and Silver Nanoparticles Obtained from *Withania somnifera* as a Source of Antibacterial Compound

• Shivangi Jaiswal • Aradhita Sinha • Kumari Anjali
• Isha Gaurav

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Corresponding Author : Isha Gaurav

Abstract : *Withania somnifera* is the best rejuvenating agent commonly known as “Ashwagandha”, belongs to the family Solanaceae. The present study deals with the effect of crude extract and synthesized nanomolecule (AgNP) from *Withania somnifera* on antibacterial activity. This knowledge can help in better management of swelling, tumour, scrofula, rheumatism, anxiety and neurosis. The crude extract of *Withania somnifera* were used for synthesis of silver nanoparticles and comparison of antibacterial activity of crude extract with AgNPs and commercial antibiotic against bacteria like

Bacillus, *Klebsiella*, *Streptococcus*, *Stapylococcus* and *E.coli*. From the result, *Withania somnifera* silver nanoparticle has attained the antibacterial activity against pathogen.

Keywords: Nanoparticles, phytochemical, antibacterial, antibiotics, UV-Vis, XRD, FT-IR, HPLC.

Introduction:

Characteristics Of *Withania somnifera*: *Withania somnifera*, commonly known as Ashwagandha, Indian Ginseng, Poison Gooseberry or Winter Cherry is a plant which is classified under the family Solanaceae. It has been extensively used in Indian, Unani and African traditional medicines (Chopra., 1994).

This plant possesses immense therapeutic potential and is known for its immuno-medulatory, anti-stress (Bhattacharya *et al.*, 2001), cardio-protective (Andallu *et al.*, 2000), anti-ageing (Bone., 1996), anti-oxidant (Dhuley., 2007), anti-inflammatory (Begum., 1988), anti-tumour and anti-cancer activities.

Antibacterial Property: Medicinal plants contain secondary metabolites like alkaloids, steroids, tannins and phenolic compounds which are capable of antibacterial activity (Kapoor *et al.*, 2015). *Escherichia coli*, *Staphylococcus*, *Klebsiella*, *Streptococcus* and *Bacillus* are some of the very common plant pathogenic bacteria.

Shivangi Jaiswal

B.Sc. III year, Botany (Hons.), Session: 2016-2019,
Patna Women's College, Patna University, Patna,
Bihar, India

Aradhita Sinha

B.Sc. III year, Botany (Hons.), Session: 2016-2019,
Patna Women's College, Patna University, Patna,
Bihar, India

Kumari Anjali

B.Sc. III year, Botany (Hons.), Session: 2016-2019,
Patna Women's College, Patna University, Patna,
Bihar, India

Isha Gaurav

Assistant Professor, Department of Botany,
Patna Women's College, Bailey Road,
Patna-800 001, Bihar, India
E-mail : ishagaurav86@gmail.com