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## Patent Search

Invention Title	AN ELICITATION WITH PHYTOSYNTHESIZED SILVER NANOPARTICLES FOR THE ENHANCEMENT OF AJMALICINE AND PREPARATION METHOD THEREOF
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### Abstract:

The present invention relates to an elicitation with phytosynthesized silver nanoparticles for the enhancement of ajmalicine and preparation method thereof. The present invention claims the phytosynthesis of silver nanoparticles from mixing silver nitrate (AgNO<sub>3</sub>) solution with Rauwolfia serpentina seed extract. Phytosynthesis of silver nanoparticles is superior over the conventional chemical synthesis wherein toxic pollutants are not required. Nontoxic and eco-friendly secondary metabolites from seed of Rauwolfia serpentina are used as reducing and capping agents in the biosynthesis of nanoparticles which permits controlled synthesis with desired characteristics. Supplementation of phytosynthesized AgNPs in callus culture medium significantly augmented the ajmalicine content. The present invention offers the simple, economic, and reproducible process of nontoxic and environment friendly nanoparticles and its application as elicitor in ajmalicine content enhancement in cell suspension culture of Rauwolfia serpentina.

### Complete Specification

#### DESC:FIELD OF INVENTION:

The present invention relates to the enhancement of the ajmalicine content via elicitation with phytosynthesized silver nanoparticles in cell suspension culture of Rauwolfia serpentina. The present invention in particular relates to a method for producing phytosynthesized silver nanoparticles from mixing silver nitrate (AgNO<sub>3</sub>) solution with Rauwolfia serpentina seed extract and its application for enhancement of ajmalicine content.

#### BACKGROUND OF THE INVENTION

Ajmalicine is a pharmaceutically important monoterpenoid indole alkaloid (TIA) used in the medication of circulatory disorders predominantly in the relief of hypertension (Duwiejua et al. 2002; Li et al. 2004; Pereira et al. 2009; Adejuwon et al. 2011; Cunha et al. 2012; Manigandan et al. 2014). Rauwolfia serpentina is a hub of more than 100 different pharmaceutically important indole alkaloids including ajmalicine (Pathania et al. 2013; Bhagat et al. 2020). International Union for Conservation of Nature declared the R. serpentina under the endangered category due to its excessive exploitation for medicinal purpose. About more than 5000 kg of ajmalicine is produced annually to meet the ever-increasing demand (Ramani et al. 2013). It costs about Rs ~4,13,800/kg (Cat no. 41111, Sigma Aldrich).

To attain the commercial requirement of TIA including ajmalicine, tissue culture technology emerges as an economical, perpetual and imperishable technique for bulk production; however, industrial production of metabolites via plant cell culture is not much popular due to the very low content of these biomolecules in the cell (Efferth 2019). Elicitor persuaded augmentation of secondary metabolites in plant cell cultures emerged as a convenient route for their economical commercial production (Giri & Zaheer 2016). Elicitors, abiotic or biotic, on attachment to a cell receptor, stimulates signals for the upregulation of secondary metabolites pathway genes via various cellular signal transduction pathways to combat the adverse effect of elicitors induced stress (Zhao et al. 2005).

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