

## Editorial Note on *Withania somnifera* (L.)

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### EDITORIAL

*Withania somnifera* (Solanaceae) Dunal commonly known as Ashwagandha, Indian ginseng and winter cherry, an Indian medicinal plant that grows as an evergreen shrub in dry parts of India. *Withania somnifera*, a commonly utilized herb in Ayurvedic medicine. The phytochemical and pharmacological activities, which were performed, are generally in various methods. *Withania somnifera* is one of the prominent therapeutic plants in Indian systems of medicine. It is used against myriad of clinical conditions. It is regularly used, alone or in blend with different plants for the treatment of various illnesses.

Laboratory research studies demonstrated that *Withania somnifera* (ashwagandha) possesses anxiolytic, antioxidant, adaptogen, memory enhancing, anti-venom, anti-inflammatory, anti-parkinsonian, anti-tumor properties. Different other effects like hypolipidemic, antibacterial, immunomodulation, sexual behaviour, cardiovascular protection, tolerance and dependence on constant utilization of various psychotropic drugs. Roots are the main significant parts of the plant used in ayurvedic preparations. Leaves and stem similarly have a rich content of bioactive phytochemicals like steroidal lactones, phenolic acids and alkaloids.

*Withania somnifera* (L.) stem, leaves and root were evaluated for antioxidant activities by various solvent extraction techniques. Among the different solvent extracts of each parts, methanol extract showed maximum antioxidant capacity than the other extracts like methanol >chloroform>acetone>ethyl acetate. Its roots are specifically used in medicinal and clinical applications.

Traditional uses of *Withania somnifera* (Ashwagandha) in Ayurveda are very prominent in several texts where formulations with various dosage forms have been mentioned in Charaka Samhita, Susruta Samhita, Astanga, Hridaya, different nighantus etc. The drugs were identified based on their composition containing Ashwagandha

as one of the significant ingredients and their therapeutic uses. Phytochemical studies on *Withania somnifera* exposed the presence of main chemical components for instance flavonoids, phenolic acids, alkaloids, saponins, tannins, and withanolides. The phytochemicals showed numerous pharmacological activities like anti-diabetic, anti-cancer, immunomodulatory, anti-aging, neuroprotective, anti-stress/adaptogenic and cardioprotective. Many clinical trials show that the plant extract and its bioactive compounds are consumed in the treatment of numerous of many diseases, such as arthritis, impotence, amnesia, anxiety, cancer, neurodegenerative and cardiovascular diseases, and others.

In the bioactive natural compounds, different phytoconstituents like steroids, phenols, flavonoid molecules are available, that have been reported and screened for their possible therapeutic effects against various viral diseases including COVID-19. The main protease (Mpro) of SARS-CoV-2 plays a vigorous role in disease propagation by processing the polyproteins which are required for its replication. In the recent study, the probable of 40 natural chemical components of Ashwagandha to investigate a potential inhibitor against foremost protease of SARS-CoV-2 by adopting the computational approach. It is very vital to consume supplements in the form of immune nutrients such as B-complex, vitamin C, copper and zinc that will support our body to fight against the SARS-CoV-2.

*Withania somnifera* based herbal formulation has been marketed in the form of extract, capsule, supplement, powder etc. This will be useful to correlate the mechanism of action with the phytochemical profile of this well-known plant from Ayurveda. Summarized the pharmacologic activities (preclinical and clinical), active phytoconstituents, mechanisms of action, potential beneficial applications, marketed formulations and safety and toxicity profile of *Withania somnifera*. It also has the capability of being effective in the treatment of SARS-CoV-2.

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