



## Pharmaceutical Importance of *Withania somnifera* in Aquaculture

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### Abstract

The use of antibiotics and chemotherapeutics for prophylaxis and treatment in intensive aquaculture has been widely criticized for its negative impact. Enhancement of the immune system seems to be the most promising method of preventing fish diseases. *W. somnifera* root is used as a Rasayana in the Indian ayurvedic tradition as a dietary supplement promoting rejuvenation, mental and physical health, as well as providing a defence against aging and challenging environmental factors.



Order: Solanalis

Family: Solanaceae

Local Name: Ashwagandha

Botanical Name: *Withania somnifera*

Sanskrit Name: Ashwagandha, Balada, Kamrupini, Gandhpatri, Vajini

Hindi Name: Asgandha, Asgandh

English Name: Indian ginseng or Wintercherry

Parts Used: Root, Leaf, Seed.

### Habitat

*W. somnifera* is the most common and wide spread species in the genus and occurs naturally, mainly in the drier regions, from the Mediterranean through tropical Africa to South Africa and from the Canary and Cape Verde Islands to the Middle East and Arabia, India, Sri Lanka and southern China. It is cultivated in gardens in the warmer parts of Europe and has become a naturalised weed in South Australia and New South Wales. It is grown in India and elsewhere as a medicinal crop plant, mainly for its fleshy roots.

### Therapeutics applications in aquaculture

- Disease resistance
- Immuno-stimulant
- Antibacterial, Antiviral
- Growth promoter

### Example

- Dietary doses of *Withania somnifera* (Ashwagandha) root powder on immunological parameters and disease resistance against the bacterial pathogen *Aeromonas hydrophila* infections in Indian major carp, *Labeo rohita* fingerlings.
- Incorporated through feed in *M. rosenbergii* increases their growth and survival.
- *Withania somnifera* attenuates *Tilapia* lake virus (TiLV)-induced mortality by inhibiting stress and strengthening the innate antioxidant defence system.

### Conclusion

Aquaculture is an excellent, explorable avenue for a state like Kerala in India. Unplanned growth of aquaculture farms in developing countries created unsustainable environmental problems. Consequently, the emphasis of aquaculture has shifted from maximizing production to sustainable production with minimum damage to environment. *Withania somnifera* is a potent immuno-stimulant, with a promising future in the sustainable health care management in aquaculture.

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### Conflict of Interest

No competing interests declared.

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