

MEDICINAL PLANTS ACT AS AN IMMUNOSTIMULAN T IN AQUACULTURE

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Abstract

Medicinal plants have been used as immune stimulants. Alternatives to antibiotics and immunoprophylactics in aquaculture may include the use of medicinal plants' natural, safe compounds. Because they are simple to prepare, inexpensive, and have minimal to no negative effects on animals and the environment, these plants are gaining more and more attention on a global scale. Many different aquatic animals have been studied when various medicinal plants, including herbs, spices, seaweeds, herbal extracts, herbal medicines, traditional Chinese medicines, and commercial plant-derived products, were used. Any part of the plant, including the roots, leaves, seeds, flowers, or extract compounds, may be used. The primary functions of medicinal plants are immune boosters, growth promoters, and antibacterial and antiviral agents for the host immune system.

Keywords: Medicinal plants, Aquaculture, Immunostimulants

Introduction

Aquaculture uses medicinal plants as chemotherapeutics, feed additives, growth promoters, microbial inhibitors, and

immunostimulants. The medicinal treatment is a traditional method used by humans to treat various pathological conditions in fishes. Medicinal plants are a rich source of bioactive compounds, which can be used to make drugs and repair or improve the body. The use of medicinal plants in aquaculture has had a significant impact on aquaculture output. The medicinal treatment is a traditional method used by humans to treat a variety of pathological conditions in fish. Medicinal plants are a rich source of bioactive compounds that can be used to create drugs and repair or enhance the immune systems of aquatic animals. Several plants and their byproducts contain phenolic, polyphenolic, alkaloid, quinone, terpenoid, lectine, and polypeptide compounds that are effective alternatives to chemotherapeutics. Microbial infestation in aquaculture causes financial loss as well as environmental degradation. Antibiotics and other chemotherapeutics are effective in disease control, but their widespread use has polluted the environment. According to many Egyptian authors, medicinal plants have attracted a lot of attention around the world and have become the subject of active scientific research in many countries like Japan, Iran, Indonesia, Korea, Mexico, Nigeria, and Thailand.

Immunostimulants: -

The growing demand for aquaculture in the fast-growing food sector, researchers have been particularly interested in studying the immune system of fish. Fish fed medicinal plants containing immunostimulant bioactive compounds increase both specific and non-specific immune responses. Because the immune system is a biological mechanism that protects living organisms from pathogens, medicinal plants can enhance fish immune responses, thereby increasing their

antipathogenic capability (Bulfon *et al.*, 2015). As a result, medicinal plants aid in the reduction of fish production losses prior to the occurrence of any disease (Awad & Awaad, 2017) The use of medicinal plants has been reported to improve immunological parameters in many fishes, including lysozyme, phagocytic, respiratory burst, complement activities, peroxidase, and others as well.

Plant sources for medicine include:-

Since ancient times, medicinal plants have been used as immunostimulants in traditional Chinese human medicine. Potential exists in aquaculture for the use of natural and safe substances as an alternative to antibiotics. Aloe (*Aloe vera*), Almond (*Terminalia catappa*) and Basil flowers (*Ocimum sanctum*) (Peraza-Gómez *et al.*, 2013) are just a few of the many herbs that are used in aquaculture.

Boost innate immune reactions:

The several traditional remedies suggested anti-microbial activity which encouraged the growth and maturation of various kinds of fish. As a result, using medicinal herbs as immunostimulants in aquaculture is becoming more popular. On plants like *Astragalus membranaceus* and *Nelumbo nucifera*, for example, numerous studies on their effects at the molecular mechanism level have been conducted (Liu *et al.*, 2004). There is growing interest in the use of immunostimulants.

Conclusion: Aquaculture, along with agriculture, is a major source of food, security, and support for the country. It stimulates the immune system by increasing the activity of the immune system's components. It also prevents fish disease in aquaculture. Several recent studies in aquaculture have demonstrated the potential of algae to treat pathogens or improve fish fitness. However, they can also cause

undesirable effects and toxicity in fish, so more research on the physiological effects of algae on fish and appropriate dosing levels is needed.

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