



Gorgan University of Agricultural
Sciences and Natural Resources

Journal of Utilization and Cultivation of Aquatics

Vol. 10(3), 2021

<http://japu.gau.ac.ir>

DOI: 10.22069/japu.2021.19358.1598

Medicinal plants: A promising source in the prevention and treatment of aquatic animal diseases

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Received: 07.30.2021; Accepted: 09.07.2021

Abstract

In recent decades, the growth of the aquaculture industry and the use of intensive culture methods has increased the susceptibility to pathogens in aquatic animals. Therefore, many researchers have focused on the stimulation of the immune system against pathogens. The use of common methods in the control of aquatic diseases has limitations due to the some side effects. Antibiotics cause the increase of bacterial resistance, accumulation in muscle, environmental damage and other methods, such as vaccines, are costly. Medicinal plants, as a safe and inexpensive source, can be a suitable alternative to antibiotics, chemicals and vaccines with minimal side effects. So far, more than 250 medicinal plant species from 75 families and 32 orders have been reported mainly belonging to Lamiales, Fabals, Asterales, Malpighiales, Euphorbiaceae and Phyllanthaceae. There are the various biological activities in herbs due to the presence of bioactive compounds such as alkaloids, flavonoids, pigments, phenols, terpenoids, lectin, steroids and essential oils. The evaluation of these bioactive compounds have shown that they can be improved the immune system and antimicrobial defense in aquatic animals. A better understanding of the bioactive compounds function can be lead to the effective application of medicinal plants in aquaculture, as they can be used specifically for each fish species. The aim of the present work is to investigate the role of medicinal plants in stimulation of immune system and to study the properties of the antibacterial, antiviral, antifungal and antiparasitic effects in aquaculture.

Keywords: Antibiotic, Aquaculture, Bioactive compounds, Medicinal plants

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