Application of Iranian Medicinal Plants in Aquaculture Disease Management

(Part 1: Antivirals)

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Preface

Worldwide, the numbers of communicable diseases of animals raised in aquaculture continue to increase. Viral diseases are one of the most important limiting factors in aquaculture development which causes high economic losses for aquaculture of the world and Iran. Diseases and pathogens are part of every intensive aquaculture production system. Normally low survival rates occur due to combined factors such as environmental conditions, nonspecific pathogens, larvae susceptibility, and low immune system development. Viral diseases cause large scale mortality in aquaculture and are very difficult to treat directly. The significant viral pathogen of finfish can cause serious harm to aquaculture. These include infectious hematopoietic necrosis virus (IHNV), infectious pancreatic necrosis virus (IPNV), an iridovirus and infectious salmon anemia (ISA), and Viral Nervous Necrosis virus (VNN). Disease outbreaks increase proportionally with increases in intensive aquaculture. Natural products including medicinal plants have been known for thousands of years for treating some human diseases. It is well known that many active compounds are responsible for potential bio-activities. For that reason, there has been considerable interest in to provide the control using medicinal plants in aquaculture to provide safe and eco-friendly compounds for replacing antibiotics and chemical compounds, enhancing immune status, and controlling fish diseases. Currently, several controlling several medicinal plants have been identified to have antiviral properties, which effectively prevent and control many viruses of aquaculture origin. Here, eight species of Iranian traditional medicinal plants with antiviral properties on fish are discussed. The plant species that have displayed the highest potential for use in aquaculture in Iran include Oregano (*Origanum vulgare*), Aloe (*Aloe vera barbadensis*), Garlic (*Allium sativum*), Ginger (*Zingiber officinale*), Coneflower (*Echinacea purpurea*), Elder (*Sambucus nigra*), Sage (*Salvia officinalis*) and Rosemary (*Rosmarinus officinalis*).

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