REVIEW

The role of currently used medicinal plants in aquaculture and their action mechanisms: A review

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Abstract

Global aquaculture development increased rapidly in recent years, and the sector has become one of the fastest-growing industries in the animal-derived food production system. However, disease outbreak remains a major challenge that hinders sustainable production through an advanced level of intensification. Recently, antibiotics applied have been restricted globally against aquatic disease outbreaks due to their apparent accumulation in the tissues, which imposes on the development of resistant bacteria. Naturally available medicinal plants were tested to combat some pathogens affecting humans and animals, as they contain a wide range of active substances that can induce biological functions. Currently, medicinal plants are being tested in aquaculture as a safe and eco-friendly substance to modulate immune status, enhance growth performance and prevent fish disease. Moreover, different parts (e.g. leaf, flower and rhizome) and forms (e.g. crude, extract and active ingredient) of plants are used to modulate specific biological functions (e.g. growth promoter, anti-stress, immunostimulants, appetite stimulation, antibacteria, anti-parasite and anti-virus). Medicinal plants are also used to defend the aquaculture animal from external stressors, such as poor water quality, high environmental temperature and overcrowding. This paper aims to provide information on the role of currently used medicinal plants on aquaculture animals and their action mechanisms. In conclusion, the current review suggested that the utilisation of medicinal plants remained untapped in uncovering the biological activities of active substances against a variety of diseases across diverse species of aquaculture animals.

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