eISSN:2664-5211 | pISSN:2663-4988

Research Highlight

Amla (*Phyllanthus emblica*): Effective Remedy against "*Aeromonas hydrophila*"

A. Valsa Judit Anto
Department of Zoology,
Ayya Nadar Janaki Ammal College (Autonomous),
Sivakasi, 626 124, Tamilnadu, India

Key words:
Fresh water fish, fish culture,
Aeromonas hydrophila, hematological studies,
amla, hemoglobin content,
pathological changes, opercular movement

The freshwater fish is a significant source of animal protein therefore, efforts are in progress to amplify its production throughout the world. But unfortunately overexploitation, human activities and many invasive species i.e., pathogens deteriorates the health of fish drastically.

Accordingly, "*Aeromonas hydrophila*" cause disease in fish. It is basically a heterotrophic, gram-negative, rod-shaped bacterium and is generally linked with changes in environmental conditions including, stress, overcrowding, an abrupt change in temperature, transfer of fish, poor water quality, mishandling, high nitrite as well as carbon dioxide levels.

Due to negative effects of synthetic chemicals, the significance of medicinal plants is increasing worldwide because medicinal plants contain substances that can be engaged for therapeutic purposes. These plants have been used to treat common infectious diseases, since ancient times[1]. The capability of herbs to reduce bacterial activity has been reported by many scientists[2]. Herbs have also been employed in numerous countries in order to control shrimp as well as fish diseases.

Accordingly, Amla which is scientifically known as "*Phyllanthus emblica*" is an important medicinal plant which plays a key role in the treatment of many ailments like the common cold, scurvy, cancer as well as heart diseases. This plant contains Vitamin C (Ascorbic acid) which possesses antioxidant, anti-inflammatory as well as anti-mutagenic characteristics.

"Hematological investigations" regarding fish have assumed greater importance because of amplifying stress on "pisciculture" and awareness about the pollution of natural freshwater resources. These studies have usually been employed as an effect and sensitive index to check physiological as well as pathological changes in fish[3].

Considering this situation, scientists conducted an experiment to assess certain physiological and hematological parameters including leucocytes count as well as hemoglobin content of the fish. Cyprinus carpio inoculated with *A. hydrophila* by using a different dose of plant extracts (*Phyllanthus emblica*). The research team also estimated the proper dose of plant

extract and evaluated its role in survival and mortality, opercular movement and oxygen consumption.

The results of this study showed that the plant extract treatment of amla boosts the survival rate of the tested fish species. The oxygen consumption of the diseased fish was found to be low in comparison with the fish treated with the plant extract. Accordingly, a low dose is more effective to cure the disease. Consequently, the opercular movement as well as hemoglobin content of the plant treated fish was higher in the experimental fish. This phenomenon proves that white blood cells get amplified in the plant treated fish, mainly the low dose treated fish. Crux of the matter is Amla possesses potent medicinal properties against "*Aeromonas hydrophila*" and also increases the survival rate of fishes.

REFERENCES

1. Rios, J.L. and M.C. Recio, 2005. Medicinal plants and antimicrobial activity. J. Ethnopharmacol., 100: 80-84.
2. Dubber, D. and T. Harder, 2008. Extracts of *Ceramium rubrum*, *Mastocarpus stellatus* and *Laminaria digitata* inhibit growth of marine and fish pathogenic bacteria at ecologically realistic concentrations. Aquacult., 274: 196-200.
3. Summarwar, S. and S. Verma, 2012. Study of selected haematological indices of freshwater fish from bisalpur reservoir. Indian J. Fundam. Applied Life Sci., 2: 51-54.
4. Anto, A.V.J. and V. Balasubramanian, 2015. Therapeutic effect of *Phyllanthus emblica* on disease induced common carp *Cyprinus carpio* by *Aeromonas hydrophila*. Int. J. Zool. Res., 11: 96-101.