Host-parasite interactions in some fish species

R. A. Khan

Department of Biology, Memorial University of Newfoundland, St. John's, NL, Canada A1B 3X9

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Abstract

Host-parasite interactions are complex, compounded by factors that are capable of shifting the balance in either direction. The host's age, behaviour, immunological status, and environmental change can affect the association that is beneficial to the host whereas evasion of the host's immune response favours the parasite. In fish, some infections that induce mortality are age and temperature dependent. Environmental change, especially habitat degradation by anthropogenic pollutants and oceanographic alterations induced by climatic, can influence parasitic-host interaction. The outcome of these associations will hinge on susceptibility and resistance.
Some species produce an adhesive substance to assist in attachment to the fish host. Parasite-S®, Formalin-F®, and Formacide-B® are brands of formalin that are FDA approved as monogenean parasiticides for use in all finfish; they, therefore, can be used on food fish as well as ornamental species. Avoid use in sensitive species; concentration must be monitored daily. Aeration is required because formalin removes oxygen. Very strong oxidizing agent; some species will not tolerate high doses. Avoid in fish species intolerant of low salinity. Higher dose required in water containing heavy organic load; avoid use in marine and brackish water. Remove by using activated carbon prior to discharge; requires VCPR*. Invasive species may be neither a host nor a parasite, but nevertheless affect native parasite-host interactions by interfering with parasite transmission (transmission interference). Parasitoids are responsible for very high Drosophila mortality (up to 90% in some fruits). Field data emphasize the importance of selective pressure that parasitoids exert on Drosophila communities. The two Leptopilina parasites (L. heterotoma and L. boulardi) have different local abundances, which vary in time, and they also compete for hosts. Parasites in some cases also feed on host substances, other than stored or recently acquired nutrients. Ectoparasites and endoparasites feed on the host's blood. 500 human hookworms can cause a loss of about 250 ml blood/day, leading to anaemia. Mechanical interferences: Mechanical interferences by parasite cause injuries to hosts, e.g. elephantiasis or filariasis in humans is caused by Wuchereria bancrofti. Increased number of those adult worms in lymph vessels coupled with aggregation of connective tissue may result in complete blockage of lymph flow. Excess fluid behind the blockage seeps thro