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Myxozoan parasites affecting aquaculture fish in Punjab (India)

Anu Katoch
Mata Gujri College, India

Myxozoans are one of the economically important groups of metazoan parasites as they infect fish harvested for food. New myxosporean pathogens are continually emerging and threatening the development of aquaculture all over the world. They cause production losses and some fish have to be discarded because they are unsightly and not considered to be fit for human consumption. In Punjab (India), polyculture consists of Indian major carps - Catla (*Catla catla* Ham.), rohu (*Labeo rohita* Ham.) and mrigal (*Cirrhinus mrigala* Ham.), and exotic carps-silver carp (*Hypophthalmichthys molitrix* Valen.), grass carp (*Ctenopharyngodon idellus* Valen.) and common carp (*Cyprinus carpio* Linn.). In polyculture, carps were prone to several diseases like trichodiniosis, haemorrhagic septicemia and various parasitic infectious diseases especially myxozoanosis. The different organs were examined under the steroozoom trinocular microscope for the presence of pseudocysts of myxozoans and clinical symptomatology if any. Intensity of the disease was recorded in gill pseudocyst Index (GPI) on the basis of countable number of pseudocysts present per gill. Similarly Fin Plasmodial Index (FPI) and Scale Plasmodial Index (SPI) were calculated for the intensity of infection. For identification, spores were studied fresh and in stained preparations with Iron-haematoxylin and Ziehl-Neelsen. For tissue location, wax embedded sections (6-7 µm thick) of infected gills were stained with Luna's method. The pseudocysts were located in the gill lamellae, gill filament and also in the gill arch. A total of 30 species of myxosporean were found infecting various tissues in the gills, scales and fins. Out of which 19 species belong to the genus *Myxobolus*, 7 species to the genus *Thelohanellus* 3 species to the genus *Henneguya* and 1 species to genus *Triangula*. Parasitism was of three type-bi, tri and polyparasitism. Clinical presentation and principal lesions caused by each species was recorded.

anuraajput@gmail.com