



Presence of Microplastics in the Reproductive Organs of Edible Kerala State Fish *Etroplus suratensis* from Vembanad Lake, Panangad, Kerala, India

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Aquatic environments have been facing significant challenges from pollution across the globe. In recent decades, concern has focused on the toxicity of microplastics, which are omnipresent in aquatic ecosystems. Microplastics (MPs) enter fish through dermal contact with contaminated water and respiration through gills. In the present study, the presence of MPs was investigated in 150 male and female *Etroplus suratensis* samples, collected over a six-month period from Vembanad Lake, Kerala, India, to examine contamination in the reproductive organs. The gonads sample was subjected to digestion with a 10% potassium hydroxide solution for 3 days. The identification of MPs was achieved by visually observing the different sizes, shapes, and colours of MPs under the bright-field microscope. The size of MPs ranged from 5 µm to 2000 µm in all fish samples. The findings indicated that fragments were predominant, followed by fibers. The confirmation of the polymer was uncovered with Fourier Transform Infrared Spectroscopy (FTIR). The FTIR revealed that polyamide was found to be prevalent. The presence of MPs in the gonadal region of fish species may lead to hormone disruption, impaired fertility, reduced egg and sperm quality, apoptosis, testicular inflammation, and decreased egg production. These observations enhance a deeper understanding of the effect of microplastics on the reproductive organs in fish.

Keywords: *Aquatic environment, Microplastics, Contamination, Reproductive organs, Fragments, Polyamide*