



Microplastic present in gullt of fish and mussels (Adriatic Sea)

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Abstract:

The biota sampling and microplastic separation protocol were done In frame of the DeFishGear project, together 12 different fish species and 1 species of bivalve mollus. Were examined in the years of 2015 and 2016 for the presence of microplastics. The fish and mussel samples were mainly collected from fishermen or were bought on the fish market, only in Bosnia and Hercegovina the fish were sampled by researcher by trawling. The fish and mussel samples were later dissected in the laboratory and the guts were examined for the presence of microparticles. Those were extracted, counted and weighted, categorized into 6 categories (fragments, filaments, foams, granule, pellets and other) and analysed for their chemical structure with FT-IR. At the end estimation of density of microparticles was calculated per fish or mussel for each species and were compared among all countries in the Adriatic region.

Results:

On regional level the average numbers of microplastic particles in examined mussels were in range from 1.65 to 3.67 microplastic particles/mussel, where minimum was observed in mussels from Italy and maximum in mussel from Bosnia and Hercegovina. The average number of microplastic particles in mussels from Greece were closer to average number from BiH, and was 3.15 microplastic particles/mussels.

Conclusion:

Commercially available fish and mussels from the Adriatic Sea are contaminated with microplastic. The average content of microparticles extracted were in range from 0.88 – 12.95 microparticles/fish and 1.65 – 3.67 microparticles/mussels. The predominant type of microplastics found in fish and mussels from Bosnia and Herzegovina, Croatia and Slovenia were filaments, and the second most common were fragments. In mussels and fish from Greece and mussels from Italy, the fragments were predominant type of microparticles and the filaments were the second most common. Results of microparticles in fish samples from the Adriatic Sea shows high variability among all of 10 compared fish samples. The comparison of three different fish species caught on different parts of the Adriatic Sea shows different type and average number of microparticles per fish sample are suggesting that the density of microplastic in the marine environment is of more importance, than the actual fish habitat is (e.g. pelagic, benthic).



Biography:

Dr. Jerina Kolutari is Senior researcher in Aquaculture and Fishery Laboratory, Durres and prime lecturer in Aquaculture & Fishery Management Department, Agricultural University of Tirana. From 2001 is part of FAO- Adriamed Program in “Monitoring of biomass pelagic fish in Adriatic Sea (GSA 18) as Senior Researcher, also FAO-Medits Program of “Joint acoustic-DPEM scientific survey of small pelagic fish stocks in the South Adriatic Sea”. The Coordinator in several projects as : SEAMED (Norway) “Strengthening Education, Applied Research, and Marine Development in West-Balkan(2009-2011), IPA DeFishGear (2013-2016), IPA BALMAS – “Ballast Water Management System for Adriatic sea protection”(2013-2016), IPA ADRION Harmonia “ Harmonization and Networking for Contaminant Assessment in the Ionian and Adriatic Seas.(2017-2020). The last project : INTERREG IPA CBC: “Environment protection, risk management and low carbon strategy.”, as External Expert (2019-2021)

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