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Arsenic Levels in Seven Marine Fish Species from the Eastern Aegean Sea and Health Risks Assessment for Consumers

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Aim of the study: The aim of this study is to determine the presence of arsenic, a carcinogenic element, in the seven marine fish species (*Mullus barbatus*, *Mullus surmuletus*, *Lithognathus mormyrus*, *Diplodus vulgaris*, *Pagellus erythinus*, *Sparus auratus* and *Dicentrarchus labrax*) gathered from Eastern Aegean Sea and to assess possible risks for consumer health.

Material and Methods: After microwave wet digestion of muscle tissues with nitric acid and hydrogen peroxide, their arsenic concentrations is determined by the method of inductively coupled plasma-mass spectrometry (ICP-MS). For basic statistical analyses and the comparison between groups, IBM SPSS Statistics V.22 is used.

Results: Under the light of the obtained data, the highest level of total arsenic is found in the muscle tissues of *Sparus auratus* (0.95 mg kg^{-1}), the lowest level of total arsenic is found in the tissues of *Diplodus vulgaris* (0.33 mg kg^{-1}). Except sea bass, there is a statistically significant difference between sea bream and other fish species ($p<0.05$). According to health risk assessments based on Estimated Daily Intake (EDI), Target Hazard Quotient (THQ) and lifetime cancer risk (TR), it is determined that there is not any risk in the consumption of these species in terms of arsenic.

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Keywords: Arsenic, fish, risk assessment, Aegean Sea.