



DETERMINATION OF TETRODOTOXIN (TTX) LEVELS IN VARIOUS TISSUES OF THE SILVER CHEEKED PUFFERFISH (*LAGOCEPHALUS SCELERATUS* (GMELIN, 1789)) IN NORTHERN CYPRUS SEA

Hasan Deniz Akbora^{1*}, İmge Kunter², Tuğba Erçetin², Ozan Gülcan², Ali Murat Elagöz¹, Burak Ali Çiçek¹

¹ Eastern Mediterranean University, Faculty of Art and Sciences, Department of Biological Sciences, NORTH CYPRUS. ² Eastern Mediterranean University, Faculty of Pharmacy, NORTH CYPRUS

*Corresponding author: hasan.deniz@emu.edu.tr

Abstract

Our aim is determination of Tetrodotoxin (TTX) levels of *Lagocephalus sceleratus*, collected from different regions of Northern Cyprus Sea; during fall and winter seasons. *Lagocephalus sceleratus* from family Tetraodontidae is originated from Red Sea. After the opening of Suez Channel in 1869, many species including *Lagocephalus sceleratus* started to migrate to Mediterranean waters. Their population increased very fast because they don't have any predators in the Mediterranean Sea. Different tissues of this fish has TTX which is 1200 times stronger than cyanide. TTX is a non-protein, heat resistant molecule which binds to sodium channels of muscular and nervous system. Ingestion of tissues of this fish can cause death or serious toxications. Collected fish samples stored at -20°C until dissection of tissues. TTX levels from homogenized tissue samples were detected with Indirect Competitive Enzyme-Labelled Immunoassay by TTX ELISA Test Kit according to manufacturer instructions. Five different tissues were analyzed in totally eight different fish for two seasons. Distribution of average toxicity between these tissues in the fall season were; Ovarium/Testis>Liver>Intestine>Muscle>Skin. Distribution of average toxicity between these tissues in the winter season were; Ovarium/Testis>Liver>Intestine>Skin>Muscle. Most toxic three tissues during these two seasons were determined as; Ovarium/Testis=0.219µg/g, Liver=0.179µg/g and Intestine=0.122µg/g. When we compare our results with previous studies, tissue ranking of TTX levels show similarities, but in general, TTX levels in our samples were lower than other studies. Besides all tissues are under toxic limit (2.2µg/g) in our study. For determining TTX levels in all seasons in *Lagocephalus sceleratus* from this area, we also collected spring and summer fish samples and we will measure their toxicity level as well.

Keywords: *Lagocephalus sceleratus*, Tetrodotoxin, ELISA, North Cyprus.