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Salinity and Atrazine Sublethal Levels Induce Gill Cells Basolateral Membrane Phospholipids Modulation in Sea Lamprey Downstream Migrants

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Abstract Text:

Conditions experienced by anadromous fishes while in freshwater may be critical to their subsequent survival in the sea. During the trophic migration to the ocean, juveniles of sea lamprey (*Petromyzon marinus* L.) are exposed to several stress factors, including different types of pollutants.

We analyzed gill histopathological biomarkers, characterized the lipid profile of the basolateral membrane (BLM) of gill cells, and determined NKA activity, in order to evaluate if BLM lipid profile system plays a part in modulation of NKA activity and may be involved in the successful acclimation of sea lamprey juveniles during downstream migration.

In the presence of higher salinity, there was a restructuring of the profile of fatty acids of BLM phospholipids with an increasing in saturation of fatty acids, C18:1w9/EPA ratio and also in cholesterol content. Furthermore, after atrazine exposure there was a lipid restructuring of the BLM of gill cells associated with a fatty acid saturation process and a concomitant decrease in HUFA fatty acids.

Thus, in presence of a stress stimulus this may be the strategy adopted by gill cells BLM of juveniles of sea lamprey to compensate for maximal salinity, osmotic, ionic and pollutant stresses.