

MUCOSAL IMMUNITY

(M-24) Evaluation of waterborne exposure to heavy metals in innate immune defences present on skin mucus of gilthead seabream (*Sparus aurata*)

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Abstracts:

Aquatic animals are continuously exposed to chemical pollutants but the effects evoked in mucins and the carbohydrate nature of the glycoproteins in the unicellular glands in fish epidermis skin surfaces, which receive the most direct contact with them, has not been fully studied and characterized. Moreover, microorganisms use lectins to recognize and bind to host terminal carbohydrates to facilitate the infection whilst host lectins bind to pathogen carbohydrates to exert protective effector functions, such as agglutination, immobilization, and complement-mediated opsonization and killing of potential pathogens. Thus, terminal carbohydrate composition and the presence of a fucose binding lectin (FBL) were determined by lectin ELISA and western blot, respectively, in skin mucus of gilthead seabream (*Sparus aurata* L.) specimens exposed to waterborne sublethal dosages of heavy metals [arsenic (As_2O_3), cadmium ($CdCl_2$) and mercury (CH_3HgCl) at 5, 5 and 0.04 μM , respectively] after 2, 10 and 30 days. Results showed little effects of heavy metals in the presence of several terminal carbohydrates with few increments or decrements depending on the sugars, exposure time and heavy metal studied. Moreover, the FBL was undetected in any of the control fish skin mucus but was evident in all the heavy metal exposed fish. Further studies are needed to understand the relation of terminal carbohydrates and lectins in skin mucus fish defense and the implications during contamination exposure.

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