

ESTROGENIC RESPONSES IN JUVENILES OF SEA BASS (*LATES CALCARIFER*, BLOCH), MILKFISH (*CHANOS CHANOS*) AND MULLET (*MUGIL VAIGIENSIS*).

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Man-made chemicals and their degradation products, releasing to the marine environment, have shown the ability to mimic natural estrogens, therefore initiating the unscheduled induction of vitellogenin (VTG) and eggshell Zona radiata protein (ZRP). Higher than normal levels of VTG and ZRP in male or juvenile fish are indicative of environmental exposure to xenoestrogens. Different fish species also response to each or mixture of different xenoestrogens differently. Detection of VTG and ZRP level in fish species has been used effectively for monitoring the estrogenic effect in many countries.

This study examines the responses of eggshell *zona radiata* proteins and vitellogenin to estradiol-17 β in juveniles of 3 teleost fish species, sea bass (*Lates calcarifer*), milkfish (*Chanos chanos*) and mullet (*Mugil vaigiensis*), commonly found in coastal water of Thailand. Fish were given intraperitoneal injections of various doses (0.0, 0.5, 2.5, and 5.0 mg /100g bodyweight) of estradiol-17 β (E2). Blood samples were collected 2 weeks after injection. ZRP and VTG levels were analyzed in plasma using immunoblotting and enzyme-linked immunosorbent assay (ELISA) with polyclonal antibody anti-salmon zona radiata protein and polyclonal antibody anti-sea bream vitellogenin. A dose-response induction of VTG level were observed in E2-treated juveniles from 4 species. ELISA and immunoblot analysis show that VTG from sea bass respond significantly to the treatment of E2, followed by the respond of VTG from milkfish and mullet, respectively while ZRP was less sensitive to E2 treatment than VTG in all 3 fish species.

In addition, the development of antibodies against specific regions on the VTG and ZRP molecule of the appropriate fish are under construction. This could form the basis for establishing bioassays for monitoring reproductive effects of xenoestrogens.