

In Vitro* Effects of Endocrine Disruptors on Sex Steroid Synthesis in Marine Fish, *Hexagrammos agrammus

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INTRODUCTION

In vivo and *in vitro* studies using mammalian systems have demonstrated that environmental chemical such as bisphenol A (BPA) and nonylphenol (NP) are referred to possess estrogenic function. However there are a few reports concerning the estrogenic effects of these chemicals on fish reproduction. (Sumpter and Jobling, 1995) In fish, estrogens play an important role in controlling reproductive processes.

In this research, we tested the potential estrogenic or other effects of BPA and NP on steroid synthesis *in vitro* using mature greenling oocytes.

MATERIALS AND METHODS

The Experimental fish were captured in the tide pool of Oryukdo, Busan, Korea during reproductive period (November-December). The maturing oocytes (1.25~1.88 mm diameter) were *in vitro* exposed to the BPA and NP at different concentrations in the presence of precursor, 17 α -hydroxyprogesterone. The steroid metabolites were analyzed by TLC or RIA.

RESULT AND CONCLUSION

In this study, maturing oocytes of the greenling, *Hexagrammos agrammus* were exposed to *in vitro* estrogenic chemicals, BPA and NP in the presence of labeled or unlabeled precursor, 17 α -hydroxyprogesterone (17 α OHP). The key metabolites produces *in vitro* were estrone (E1), estradiol-17 β (E2) and progestins (17 α 20 β OHP). In the incubation of vitellogenic oocytes, treatment with NP resulted in a higher synthesis of E2.

In the incubation of maturational oocytes, NP and BPA had no observable effect on 17 α 20 β OHP production except for 1 and 10 ng/ml of NP stimulated its production, but BPA inhibited HCG-stimulated 17 α 20 β OHP. E2 production was only stimulated of the highest concentration, 1000 ng/ml of NP and 100 ng/ml of BPA.