

3rd International Conference on

Aquaculture & Fisheries

September 29-October 01, 2016 London, UK

Pre-treatment of phytochemical (*Tribulus extract*) alleviates intra-follicular oxidative stress and ameliorates oocyte maturation in catfish

Mahammed Moniruzzaman, Indranath Ghosal and Suman Bhusan Chakraborty
University of Calcutta, India

Present communication is an attempt to demonstrate the influence of phytochemicals on the action of maturation inducing hormone (MIH) on the maturation of oocytes. The oocytes from gravid female catfish *Mystus dibrugarensis* were isolated and incubated separately in medium of (a) MIH (1 µg/ml), (b) ethanolic extract of *Tribulus*, (c) aqueous extract of *Tribulus* (d) MIH administered with (i) ethanolic extract of *Tribulus*, (ii) aqueous extract of *Tribulus* and the effects of treatment on oocyte maturation were evaluated by considering the rate (%) of germinal vesicle breakdown (GVBD). Incubation of oocytes in medium containing only *Tribulus* extract (both aqueous and ethanolic) did not result in any significant change in GVBD percentage. Nearly all the oocytes underwent GVBD when incubated with MIH for around 20 h. However, it was quite interesting to observe that incubation of oocytes with *Tribulus* extract co-administered with MIH in the medium, led to an accelerated rate of GVBD in the oocytes. Further study revealed that incubation with *Tribulus* extract accelerates the action of MIH on the formation of a complex of two proteins (MPF), a regulatory component called cyclin B and the catalytic component protein kinase known as cyclin-dependent kinase, Cdk1. Notably, administration of *Tribulus* extract, led to a sharp reduction in the follicular level of MDA (malondialdehyde) - an intracellular stress marker, and significant increase in the activity/level of both enzymatic [SOD (superoxide dismutase), CAT (catalase), GST (glutathione transferase), GPx (glutathione peroxidase) and GRd (glutathione reductase)] and non-enzymatic [GSH (reduced glutathione)] antioxidants. Collectively, current study presents the evidence of phytochemical administration in the incubation medium alleviates oxidative stress of pre-ovulatory follicles by stimulating different antioxidants and ameliorates MIH actions on the process of final oocyte maturation through formation of MPF.

Biography

Mahammed Moniruzzaman is a Post-doctoral research fellow in Fish Endocrinology Laboratory, University of Calcutta, Kolkata, India. He has completed his PhD from Environment Endocrinology Laboratory, Visva-Bharati University, Santiniketan, India and currently working to investigate whether phytosterols can protect ovarian and liver tissue against lipid peroxidation, and about bacterial infection which can alter gender specific immunostimulation.

rptdl4@gmail.com

Notes: