

## Investigation in Histological Effects of Genistein on the Ovarian Tissue of Fish Three Spot Gourami (*Trichogaster trichopterus*)

Sepehr, Marziyeh<sup>1\*</sup>; Oryan, Shahrbanoo<sup>2</sup>; Naji, Tahareh<sup>3</sup>; Yaghmayee, Parichehr<sup>4</sup>

1- MSc, Biology Department, Islamic Azad University, Science and Research Branch, Tehran, Iran. Email: marziye.sepehr@gamil.com

2- Professor of Biological Science, Kharazmi University, Tehran, Iran. Email: sh\_oryan@yahoo.com

3- Assistant Professor, Islamic Azad University, Pharmaceutical Sciences Branch, Tehran, Iran. Email: naji.t@iaups.ir

4- Assistant Professor, Islamic Azad University, Science and Research Branch, Tehran, Iran. Email: yaghmaei\_p@yahoo.com

Received Date: April 14, 2012

\*Corresponding Author

Accepted Date: June 16, 2015

---

© 2015 Oceanography. All rights reserved.

### Abstract

The major aim of this study was to investigate the effect of Genistein on the histological structure of three spot Gourami's (*Trichogaster trichopterus*). Six groups of immature fish were injected intramuscularly by 0.15, 1.5 and 15 mg/kg of Genistein and by the same doses of 17 $\beta$ -estradiol (E2). The sham group was received ethanol and control group was remained intact. After the end of treatment, the fish's ovaries were investigated histologically via H&E staining method. The statistical test of pairwise Tukey was applied on the average diameter of oocyte among all groups. The results showed significant difference between groups that were treated by Genistein (0.15 mg/kg), E2 0.15 mg/kg, and the control group (P<0.001).

Subsequently, the Mann Whitney test was also applied on the number of oocytes of each fish's ovary. The results exhibited significant difference between groups whom they treated by Genistein (0.15 and 15 mg/kg and control group (P<0.001). Histological observations demonstrated that the Genistein in (0.15 mg/kg) dose had estrogenic effect and increased the development rate of oocytes in ovary, whereas Genistein in dose (15 mg/kg) verified anti-estrogenic effect. On the other hand, 17 $\beta$ -estradiol in (15 mg/kg) dose caused delay in the development of oocytes and increased the number of atretic oocytes dramatically. On the contrary, treating by 17 $\beta$ -estradiol of (0.15 mg/kg) dose was accelerated the oocytes development.

These outcomes of our experiment proved that Genistein could have dual effects (estrogenic and anti-estrogenic) based on its dose. Besides, treating by E2 at higher dose may cause delay in the oocyte development.

Keywords: *Three spot Gourami, Genistein, Phytoestrogen, Ovary, Histology.*

---