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EXTENDED ABSTRACTS

Histological Assessment Of The Impact Of Climate Change On Ovarian Recrudescence In African Catfish (*Clarias Gariepinus*)

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ABSTRACT

Introduction All ovr the universe, global climate change is being encountered and its physical impacts are felt everywhere (Shakoor et al., 2015). The varying weather patterns affect both the quantity and quality of water resources available for irrigation, fish farming, and power generation. Regrettably, it's also bringing about increasing temperatures, giving rise to both negative also as positive impacts on fishing and fish culture systems consistent with the region and latitude (Magawata and Ipinjolu, 2014). thanks to rise in universal climatic change, the water level structure in most freshwater bodies will probably adjust as a results of drought or flood effect. Patino and Thomas (1990), Nagahama et al. (1995), reports that ovarian follicle maturation in fish includes maturational processes within the nucleus and cytopolasm of the oocyte. Such processes are: germinal vesicle migration (GVM), switch in follicular secretion from C18 to C21 steroids, acquisition of oocyte maturational competence (OMC) and therefore the ability of the oocyte to resume meiosis in response to a progestin. This study was administered to assess the impact of water level variation caused by global climate change on ovarian recrudescence in African catfish (Clarias gariepinus) female broodstock. Materials and methods Experimental Design Twelve tanks were used for the experiment. The fishes were randomly distributed into the twelve (12) tanks (1m x 1m x 0.9m) at a consistent rate of two (2) broodstock per tank. The experimental tanks were organized in three locations namely: laboratory, outdoor and greenhouse. Each treatment location had two volumes of water (20L and 10L). there have been thus three (3) treatments and three (3) replicates. a complete of twenty-six (26) fishes were stocked within the three (3) treatments x three (3) replicate experiments. The fish in each tank were manually fed 2% of their weight in two regimes per day at 9.00 hours and 15.00 hours for 49 days in static water. Fish were weighed every fortnight and therefore the quantity of feed adjusted accordingly. The effect of water level variation on the fish ovarian development, growth and maturity was investigated using histological procedures. Data Collection and Analysis At the start of the experiment, the gravid fish (female broodstock) were injected with hormone and stripped off all the eggs. there have been fed for five weeks (for first sampling). One fish from each treatment group was dissected and therefore the refore the gonad removed and at the 7 weeks (for second sampling) one fish from each treatment group was also dissected and the gonad removed to see the gonadal development of the fish. The gonads were weighed and preserved in 10% formol saline for further analysis. Histological procedures Gonad maturity decided histologically by means of sunshine microscopy. The developmental stages of the ovaries were determined for every treatment. Oocytes were classified by developmental stage adapted from Bromage et al. (1987).

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Gonad samples were fixed for 24-48hrs in Bouins solution then subjected to histological processing. The developmental stages of the gonads were determined by identifying histological features. Subsequently, the sexual maturity/stage of the sample groups were confirmed. Statistical Analysis The data resulting from the feeding trial were subjected to one-way analysis of variance (ANOVA). the importance of difference between means decided by Duncan's multiple range tests using the SPSS computer statistic package for widows 7, (version 17). Results The sampled fish showed ovaries during a sort of growth stages. During the primary week of the experiment, the experimental fishes were in stage vii (gonads empty). within the second week, the fishes were in stage viii (Recovery stage), and therefore the gonads later enter stage I and II (Enlargement of gonads) which this stage are immature stage. The results suggested that gonads of Clarias gariepinus reared in higher water volumes (20L) developed to phase V and V1 (spawning and depletion stage) within 7 weeks. However, gonads of Clarias gariepinus reared in lower water volumes (10L) didn't develop or mature appreciably at 7 weeks. Hence there was a big difference ($P>0.05$) in gonadal development in fishes reared at varying water levels. Discussion Results therefore suggest that water level variation has significant effect on gonadal maturation in Clarias gariepinus female broodstock. The gonadosomatic index (GSI) and fecundity within the different water levels also shows significant difference

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