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**Effects of Rearing Temperatures on Sex Ratios in Tilapia,
Oreochromis niloticus L., Investigations on a Local Population from
the Lake Victoria in Kenya**

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Abstract

Due to early and uncontrolled reproduction, farming of Nile Tilapia in ponds results in overcrowding, insufficient food for the fish and thus stunting. Therefore, all male production populations are often preferred. High rearing temperatures are suspected to shift the sex ratio towards males in different strains and populations of Nile Tilapia, *Oreochromis niloticus*. To test, whether a local population of *O. niloticus* is sensible to high rearing temperatures, research trials were conducted on progenies, derived from brooders originating from the Winiam Gulf, the Kenyan part of Lake Victoria. All investigations were carried out at a testing unit, including closed recirculation systems for the rearing of brooders and artificial incubation of eggs, at Maseno University, Kenya during a research period from October 2000 till May 2001.

Eleven batches could be tested, which encompassed a 10-day temperature treatment (36 °C), fry on-growing until an age of 90 days post fertilisation and final sex determination by inspection of the gonads. From these 11 batches all temperature treated progenies showed a high male tendency in their sex ratios. The overall male ratio in the treatment group was 79.1 % while for the control the male ratio was 54.1 %. This reflects a difference of 25 %. In 6 of these batches the difference regarding the sex ratio between the treatment group and their respective controls was significant (t-test). The results indicate that, the tested population of *O. niloticus* from Lake Victoria shows a response to temperature treatments by shifting the sex ratio of the temperature treated progenies towards males. The results further indicate that due to the non-homogenous reactions on sex determination, the lability of sex ratio to elevated temperatures might depend on specific breeding pairs and therefore it might be a heritable trait.

Keywords: Kenya, *Oreochromis niloticus* L., sex determination, temperature sensibility