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Application of breeding methods to production genetically improved farmed Nile tilapia, *Oreochromis niloticus*

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The Nile tilapia, *Oreochromis niloticus* is one of the most economically important fish, several selective breeding programs for Nile tilapia have been established and maintained for example, GIFT (1993& 1998), GET-EXCEL (2004), and GST (2004). These selective breeding programs have generally been implemented in Asia. But, despite the fact that Africa holds the global wealth of tilapia genetic resources and has a great natural potential for aquaculture development, the trials for the genetic improvement of Nile tilapia in Africa were rare.

This work represents a selection program that has a main focus on growth rate and body traits. It relies on making several hybridizations between different Nile tilapia populations. Three geographically distant populations of Nile tilapia were collected , Kafr-El sheikh, Fayom, and Serw two years ago. The genetic variation among the studied populations were assessed based on SSR technique. Five SSR primers were designed and used to assess the genetic variation. The results showed that Fayom, and Serw populations were very similar, so, we began our hybridization series with the hybridization between Kafr-El sheikh and Fayom populations to achieve the maximum benefit from the genetic variations between them.

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