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Technology Engineering of Aquaculture Snakeheads [*Channa striatus* (Bloch, 1793)] using Cross Breeding from Different Waters for Determining the Genetic Variation of Superior Seeds

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**Abstract**

The objective of this research was to investigate the superior seed for snakeheads was result on the cross-breeding parent of snakeheads from different waters in Central Java. The material used snakeheads size 700 g ± 0.05 g (female and male) from different water in Central Java. Methods design completely randomized four treatments and three replications, the study in the first place from February 2015 to November 2015. Seed snakeheads caught from waters Rawa pening is crossbreeding caught from waters Segoro anakan (A), then is crossbreeding parent snakeheads from Gajah Mungkur waters (B), crossbreeding parent snakeheads from Rembang rivers (C) and crossbreeding from the parent snakeheads from Ujung Pangkah waters (D), superior seed treatment results from the production was given by pellet 5% / biomass / day. Study to produce snakeheads the size of consumption with the result of rapid growth, moderate and slow proceed anyway analysis of genetic variation genetic code, heterozygote, polymorphism snakeheads consumption size super. The results showed that of the maintenance of improved seed of cross-breeding waters of the Swamp Dizziness cork mated with parent fish caught from Ujung Pangkah (D), which is the highest result (165 337 mg) and lowest from waters Segoro anakan A (141.5 mg). Next polimorpisame analysis results using a micro-satellite to fish yielding seeds snakeheads on various treatment caught from waters Rawa pening be mated with parent from the waters Segoro anakan of snakeheads (A, band 1,2), the parent snakeheads Gajah Mungkur ( B, band 3.4).

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**Keywords:** : Albumine; DNA; mikrosatelit analysis; snakeheads [*Channa striatus* (Bloch, 1793)]

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## 1. Introduction

Nowadays, the extinction of the snakehead fish is caused by the overfishing, habitat disruption (Balkhis et al., 2011), and pollution (pesticides, soap sand organic matter, gradual repair of damaged muscles necrosis, macrophage infiltration, fibrosis and mycotic granulomas (Uthayakumar *et al.*, 2014, Rao *et al.*, 2015), also that Qiufen *et al.* (2013) reported, that causes death in *Channa striatus* to solve the problem is prevent the extinction through basic research to discover the theories and methods of fish farming to improve of snakeheads fish (Istiyanto, 2011) and environmentally friendly so as to increase the production of *C. striatus* (Hariyanti, 2013), so as to increase the production of *C. striatus* (Bijaksana, 2012).

Another problem is the using of mikrosatelite variability of fish growth for both broodstock *C. striatus* and the superior broodstock seed marriages, with differences in geographical location (in Rawa Pening, reservoirs Gajah Mungkur, Solo River, Segara Anakan waters, Ujung Pangkah waters broodstock of snakeheads with the difference in geographical location and type of waters in Central Java was obtained by the difference in quality snakesheads fish broodstock and improved seed are: baseline differences in composition and molecular weight of the DNA, heterogenetas, genotype and allele frequencies, this basic data helpful. Highly for the development of fish farming snakeheads in Central Java, especially in choosing fish seed parent and a good quality snakesheads. Targeted research was the basis of data obtained by different types of parent snakeheads with different growth rates (highest, medium and low) and based on the analysis of genetic variation mikrosatelite as one type of fish germ plasmah nutfah of snakeheads in Central Java which was currently unclear, and has not been found by the genetic engineering approach mikrosatelite methods. So it needs to know that the potential genetic (Bijaksana, 2003; Bijaksana, 2006) and freshwater aquaculture efforts, through interbreeding future with out-breeding techniques. The importance of this study is to increase the production of *C. striatus* which contains albumin and useful in acceleration of healing and post-surgical blood clots, as well as assist in the protection / conservation of snakeheads fish from extinction plasmah nutfah Central Java Province. Based on information obtained basic data such as genetic purification, then used as the basis for *C. striatus* and assist in the selection of qualified of broodstock snakesheads fish farming technology developed with cross-breeding technique is out-breeding Sakhare (2015) reported fecundity of air breathing fish *C. striatus* that also observation made on the fecundity of the air-breathing fish from waterbodies in Beed district Maharashtra India are reported. The ovarian ggs were found to be of different sizes (Bijaksana 2006). The number of ova  $\cdot g^{-1}$  mature ovary ranged from 477 to 695 and the number of ova  $\cdot g^{-1}$  body weight, from 36 to 68, the average being 49. The gonad weight and fecundity showed an increase with the increase in size of fish. The objective of this research was to investigate the superior seed for snakeheads was result on the cross-breeding parent of snakeheads from different waters in Central Java.

## 1. Material and methods

### 1.1. Preparation of animal test

The research activities will be conducted in the month (February 2015) in the laboratory of Prof. Dr. Gatot Laboratory Coastal Eco Development, University of Diponegoro and Laboratory Faculty of Mathematics, University of Diponegoro in Semarang, Indonesia.

### 2.2. Animal testing

Animal test used is the snakeheads was crossbreeding are taken from public waters of the area (geographic) which can represent a different public waters in Central Java, Indonesia. Methods of seed snakeheads using basic design completely randomized with four treatments and three replications, namely the implementation of the study year I carried out from February 2015 to November 2015 which examines the character of genetically superior seeds snakeheads most good growth, namely snakeheads caught from waters Rawa pening (A) will be mated with a parent snakeheads caught from waters Segoro Anakan, then mated with parent snakeheads derived Gajah Mungkur (B), and is mated with a parent who came from Rembang waters (C) and mated from the parent fish the of the

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