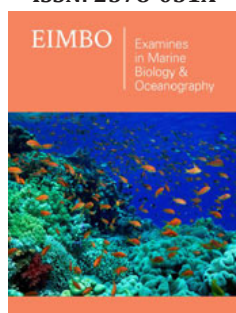


# Induced Spawning of *Clarias gapienus* using Different Pituitary Gland Extract (PGE)

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## Abstract

This study was conducted to determine the effect of different dosages of cat fish pituitary gland extract (PGE) on induced spawning of cat fish *Clarias gapienus*. Four dosages were used (1mg/kg, 2mg/kg, 3mg /kg and 4mg/kg of females). Each dosages from males (500g to 510g) was injected to females (512g to 520g) at three replications with total of 12 females were injected. Stripping of females happened after (15-17 hours) when the temperature (28 °C - 30 °C). Eggs were weighted and counted. Eggs were fertilized with milt of females then the eggs were incubated in 12 jars (size 3 liter per/one) after (35hr-39hrs) the hatching of incubation were happened as temperature (28 °C - 30 °C). All hatching and survival rate were counted and recorded. Results indicated that there were significant different ( $p \leq 0.05$ ) between the dosages on induced spawning of fish. Eggs weight, eggs number, fertilization rate and hatchability rate were significant ( $p \leq 0.05$ ) higher in dosage four (T4) (4mg/kg) as compare with other treatments. Total hatchability rate produced from stripped females were significant ( $p \leq 0.05$ ) high in treatment four (T4) (4 mg/kg) as compare with other treatments. Finally the conclusion of this study indicated that high eggs weight, eggs number and hatchability rate were recorded with 4mg/kg body weight of females. Study recommended that the better for induced spawning of catfish were 4mg/kg of females.

**Keywords:** Catfish; Pituitary gland extract; Dosage; Eggs number; Eggs weight; Fertilization; Hatchability

## Introduction

Hormonal induction has been the subject of many recent reviews. The physiological mechanisms involved in the final stage of oocyte maturation, ovulation and egg release have been thoroughly reviewed [1-5]. In Africa induced breeding started after the Second World War. The first successful production of fingerlings was that of *Clarias gapienus* (Chellcher in Ivory Coast in Egypt). Objective of study is to determine the best dose of pituitary gland extract for induced spawning of cat fish *Clarias gapienus*.

## Material and Methods

The study was conducted for two week in the period (June 2019) at fish farm of Neelain University (Jebel Aulia). Four treatments were used (1mg/kg, 2mg/kg, 3mg/kg and 4mg/kg of female's body weight of pituitary gland extract hormones) with three replicate per dosage. Total of 12 females (510 to 520g) were selective ready for stripping of eggs. Each female was kept separated in happas (2×1.5×1m per one). Each dosage of PGE was grounded in mortar and mix with 1ml of normal saline solution. Each fish were injected intramuscular by one injection in the period 6PM to 10PM. Stripping of females was carried out with pressing the abdomen, eggs realized easy from genital opening of females, then the mixed with milts by a little water in 2-5 minutes fertilization were finished by a feather. The eggs were done spreading in jars 50L with flowing of water for incubation temperature (28 °C - 30 °C) after 30-40 hours from incubation of eggs the hatching were happened. One way a nova was used to compare the different parameters between treatments (Table 1).

**Table 1:** Shows the performance of fish *Clarias garipinus* with different dosages (m±sd).

Parameters	T1	T2	T3	T4
Initial weight (g)	517.33 <sup>a</sup> ± 2.19	514.33 <sup>a</sup> ± 2.96	510 <sup>a</sup> ± 6.51	512.67 <sup>a</sup> ± 2.18
Temp of ovulation	29.67 <sup>a</sup> ± 1.45	28.63 <sup>a</sup> ± 2.31	30 <sup>a</sup> ± 0.57	30 <sup>a</sup> ± 1.52
Latency of stripping	15.67 <sup>c</sup> ± 1.45	16.67 <sup>b</sup> ± 0.88	15 <sup>b</sup> ± 0.577	17.67 <sup>a</sup> ± 0.78
Eggs weight (g)	40.67 <sup>d</sup> ± 2.6	52.67 <sup>c</sup> ± 3.3	65.33 <sup>b</sup> ± 2.7	72.67 <sup>a</sup> ± 2.9
Eggs number	14666.67 <sup>d</sup> ± 881.9	24333.33 <sup>c</sup> ± 2603.41	28000 <sup>b</sup> ± 4163	2603.41 <sup>a</sup> ± 44666.67
Fertilization rate %	41.33 <sup>c</sup> ± 5.8	51.33 <sup>b</sup> ± 3.9	64 <sup>a</sup> ± 2.1	65 <sup>a</sup> ± 2.8
Hatchability rate %	53.33 <sup>c</sup> ± 5.8	60.33 <sup>b</sup> ± 3.9	68.67 <sup>a</sup> ± 4.9	68.67 <sup>a</sup> ± 4.4
Latency hatchability (hr)	35 <sup>a</sup> ± 0.57	38.67 <sup>a</sup> ± 5.2	39 <sup>a</sup> ± 2.9	35.33 <sup>a</sup> ± 1.8
Survival rate %	68.33 <sup>a</sup> ± 5.1	67 <sup>a</sup> ± 6.2	65 <sup>a</sup> ± 8.2	68.33 <sup>a</sup> ± 5.1

## Result

Results indicated that there were significant different ( $p \leq 0.05$ ) between the dosages on induced spawning of fish. Eggs weight, eggs number, fertilization rate and hatchability rate were significant ( $p \leq 0.05$ ) higher in dosage four (T4) (4mg/kg) as compare with other treatments. Total hatchability rate produced from stripped females were significant ( $p \leq 0.05$ ) high in treatment four (T4) (4mg/kg) as compare with other treatments. Finally the conclusion of this study indicated that high eggs weight, eggs number and hatchability rate were recorded with 4mg/kg body weight.

## Discussion

This study agrees with some authors like Alaiwa [1] found that the ovulation of *Cypronus carpio* must be through pituitary gland hormone at a dose of 2-3mg per kg/body weight 3or4 glands. Rokade et al. [5] used carp pituitary extract with two dose for female according to 4mg and 9 mg/kg at intervals of 5 hours and a single dose for males 4-5mg/kg dose of ovaprim was given to 10 females and 0.2ml dose to 5 males it gave successful stripping.

## Conclusion

Results indicated that high eggs weight, eggs number and hatchability rate were recorded with 4mg/kg body weight of

females. Study recommended that the better for induced spawning of Catfish were 4mg/kg of females.

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## Recommendation

To induce spawning the female of catfish must be ready and the best dose to induce spawning of Catfish is 4mg/kg of females.

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