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# The effect of the addition of cow brain powder in commercial feed on the gonadal maturity of comet goldfish (*Carassius auratus auratus*)

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**Abstract.** The aim of this research was to analysis the effect of addition bovine's brain meal in artificial feed on gonad maturity and to find out the best time of gonad maturity in comet fish. This research was conducted at Fourth Building Hatchery Faculty of Fisheries and Marine Sciences Padjadjaran University on November 2014 until Januari 2015. Freeze drying of bovine brain was conducted at Research Center Inter University Bandung Institute of Technology. The research was using Completely Randomized Design (CRD) with four treatments and three replications. The treatment were 20 mg/kg, 35 mg/kg, 50mg/kg and control. The parameters of this research are Gonado Somatic Index (GSI) and egg maturity level. Addition of bovine brain meal in feed with the dose of 50 mg/kg are giving the best result until 45 days of the care time against gonad maturity of comet fish with GSI result 12.93 %, egg maturity level ripe phase 21.115 and fecundity 1520 grain/g.

## 1. Introduction

Gonadal maturity and egg quality can be improved by good broodstock management. The external factors that need to be considered in broodstock management are, among others, cultivation container, water quality, temperature, broodstock density, and feed. Internally, the use of natural or synthetic hormones can accelerate the maturity of the gonads.

Cow brain is one of the natural ingredients that can be used to accelerate gonadal maturity. The brain is an organ that is extremely important in the reproductive system, because Gonadotropin-Releasing Hormone (GnRH), which consists of 10 amino acids (decapeptide) that stimulate the release of gonadotropin (GTH) in the pituitary gland, is found in every part of it [1]. In a cultivation container, environmental signals are often weak or nonexistent that the reproduction process cannot run perfectly [2]. Stimuli from the environment, such as temperature, are processed through sensory receptors. The resulting neural signals, when reaching the hypothalamus in the brain, affect the pituitary gland through a chemical messenger which is referred to as releasing hormone. The releasing hormone stimulates the pituitary to produce a hormone with the gonads being the target organs. This hormone is called gonadotropin. This hormone affects the production of sex steroids in the gonads that eventually play a role in the maturation of gametes [3]. Therefore, hormonal preparations such as ovaprim, hCG (Human Chorionic Gonadotropin), and LHRH (Lutenizing Hormone Releasing Hormone) are used.

Cow brain that is processed into powder and mixed in feed can be used as an alternative ingredient for stimulating the gonadal development in comet goldfish. Comet goldfish (*Carassius auratus auratus*) is one of goldfish strains with physical beauty represented by a longer and more beautiful tail,

