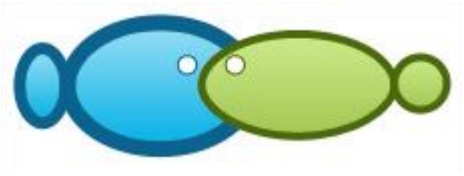

Evaluation of heavy metal contamination in various fish meat from Cirata Dam, West Java, Indonesia

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Abstract. Commodities of fresh water fish consumption which is generally marketed in Bandung, Indonesia and surrounding areas are carp, tilapia and catfish. These types of fish are from post-harvest fish farming in Floating Fish Net (FFN) in Cirata Dam. This study aimed to evaluate the accumulation rate of heavy metals Cd, Zn, Pb and Hg contained in fish meat in Cirata Dam namely common carp (*Cyprinus carpio* L.), Nile tilapia (*Oreochromis niloticus* L.) and striped catfish (*Pangasianodon hypophthalmus*). The method used in this research was survey method. Heavy metal tests were conducted by using AAS (Atomic Absorption Spectrometry). The results showed that heavy metals were detected in fish meat (*C. carpio*, *O. niloticus* and *P. hypophthalmus*) which cultured in Cirata FFN were Pb and Zn whereas Cd and Hg were found to be negative. Pb that were containing in fish meat ranged from 2.0318 to 3.1553 ppm. This range exceeds the allowance standard quality (2 ppm) of the Food and Drug Administration of Republic Indonesia (FDA RI). The contamination of Zn found in fish meat was observed ranged from 7.3985 to 10.4972 ppm which is within the limits that do not exceed the standard quality (40 ppm) of the FDA RI.
Key Words: accumulation, *Cyprinus carpio*, *Oreochromis niloticus, Pangasianodon hypophthalmus,* aquaculture, FFN, water pollution.

Introduction. Along with the increasing of education and knowledge about nutrition, the consumption level of fish in a society is also increasing. Fish, in addition, contain proteins, minerals and vitamins that are essential for humans (Medeiros et al 2012). Fish also contains unsaturated fatty acids such as omega 3 and 6 which prevent coronary heart disease and provide nutrients for the human brain. Therefore, the fish has two virtues as a source of nutrition and materials treatment (El-Moselhy et al 2014).

Fish consumption of community in Bandung city, Indonesia has been increasing recently, in 2014 has reached 33.90 kg/capita/year, while the World Health Organization recommended that level of fish consumption per capita is 36 kg/year (Department of Agriculture and Food Security in Bandung 2015). Most of fresh water fishes distributed in Bandung are largely supplied from Cirata Dam. Types of fish that are supplied namely *Cyprinus carpio*, *Oreochromis niloticus, Pangasianodon hypophthalmus*.

Cirata waters contain heavy metals Cd, Cu, and Zn in which the concentrations has exeeded the quality standards set by the Government of the Republic of Indonesia through Government Regulation No. 82 of 2001 (Damayanti et al 2010). In addition to heavy metal contamination, the water of Cirata Dam also contains very high ammonia concentration of 0.45 mg/L, while the standard quality limit is 0.016 mg/L (Sudradjat et al 2010).

The fish which is cultivated in water area contaminated by heavy metals are very likely containing heavy metals on its flesh (Benzer et al 2013). The higher the contamination of heavy metals in the water body, the higher are the bio-accumulation of heavy metals contained in the network aquatic organisms (Tapia et al 2012). This represents a serious threat to humans (Shafei 2015).

The rate of heavy metal accumulation in fish meat depends on the species of fish, age, gender and location where the fish are cultivated (Thakur & Mhatre 2015). The