ABSTRACT

LAKSMI SULMARTIWI. Potential of Bandotan Leaf Essential Oil (*Ageratum conyzoides*) for Stress Reducing Substance in Koi Carp (*Cyprinus carpio*) Transport Technology. Promotor : Win Darmanto (Department of Biology, Faculty of Sciences and Technology, Airlangga University) and Ko-Promotor : Moch. Amin Alamsjah (Marine Department, Fisheries and Marine Faculty, Airlangga University).

Transportation is known to cause stress on fish with the result can lead to mortality. This research have a purpose to determine the potential of Bandotan leaf essential oil as stress reducing substance which can applied in koi carp transportation.

This research was began in September 2012 until August 2013. This research consist of 5 stage including extracting Bandotan leaf essential oil, analysis of essential oil solubility and chemical composition, bioactivity test to koi carp, test the activity to 8 hours koi carp transportation, and test the ability of essential oil to various density of fishes which are transported.

The results showed that Bandotan leaf essential oil which has a chemical composition from group of terpen, chromen, coumarin, and phenol. This essential oil has solubility in water of 111,66 ppm. LC_{50} to koi carp for 24 hours is 34,047 ppm and safe concentration (SC) for 24 hours is 10 ppm. Non lethal concentration during 8 hours transportation occurred in concentration 5 and 10 ppm. Water quality during this research was tolerated to koi carp. Treatment with 5 and 10 ppm concentration and observation time (0, 0,5, 1, 2, 4, 6, 8 hours and 1 hour post transportation) gave in a significant result to stress response of fish such as cortisol level, tachyventilation, blood glucose levels, Na^+ ion level, and Cl^- plasma level, along with survival rate of koi carp. Analysis results also showed an interaction between concentration and observation time. Based on MARS analysis obtained an equation Y = 15.538 + 29.415 * BF1 - 12.163 * BF3 - 4.859 * BF4. (Y = mortality; BF1 = time ; BF3 = concentration; BF4 = density).

Bandotan leaf essential oils has chemical compound with light molecular weight, high lipid solubility, and have opioid analgesic effect which work in central nervous system. The properties of bandotan leaf essential oil causing it has a potential as stress reducing substance in koi carp transportation at concentration of 5 ppm.

Key words : Koi carp transportation, *Stress Reducing Substances*, *Ageratum conyzoides* L.