

ABSTRACT

Setyaningrum, Retno. 2012. **Effect of Endophytic Bacterial Filtrate on Yellow Cyst Nematode Population (*Globodera rostochiensis*) in Potato Plants (*Solanum tuberosum* L.)**. Thesis. Department of Biology Faculty of Science and Technology of the State Islamic University (UIN) Maulana Malik Ibrahim Malang. Supervisor: (I) Ir. Liliek Harianie AR, M.P (2) Umaiyyatus Syarifah, M.A

Key words : *Solanum tuberosum* L., Endophytic Bacteria, Filtrate, *Globodera rostochiensis*

Globodera rostochiensis is one of the main pathogens in potato plants troubling farmers in Indonesia. Control of many farmers do today is to use chemical pesticides. The use of chemical pesticides are constantly a threat to the environment and human health. Presence of endophytic bacteria possible can be used as a control agent for nematodes that are environmentally friendly because endophytic bacteria can produce toxic compound to nematodes. The research objective was to determine the effect of the filtrate endophytic bacterial of the populations *Globodera rostochiensis* cyst on potato plants.

The study was conducted at the Microbiology Laboratory and greenhouse Department of Biology, Faculty of Science and Technology, UIN Malang Maulana Malik Ibrahim and Plant Pest and Disease Laboratory, Brawijaya University of Malang. The experiment was conducted in December 2011 to April 2012 using a Completely Randomized Design (CRD). The filtrate is made by growing bacteria Endophytic bacteria in TSB medium for 48 h, then centrifuged by speed 13.000 rpm for 20 minutes. Subsequently the filtrate obtained was tested on a yellow cyst nematodes on potato plants were inoculated in the greenhouse.

The results showed that the filtrate endophytic bacteria can inhibit *Globodera rostochiensis* cyst populations. Three of the six isolates that have a high ability in suppressing the population of *Globodera rostochiensis* cyst in 100 grams of soil is isolate AA (91%), DH (81%) and BE (81%). AA isolates were able to suppress the population of *Globodera rostochiensis* cyst highest, by suppressing levels of up to 91%. Endophytic bacteria of all isolates (isolates AA, AH, BA, BE, DA and DH) be able to increase the growth of potato plants, that is plant height and root weight of plant potatoes.