

ELICITOR BIOSTIMULATION IN *Dendrobium antennatum* IN VITRO CULTURE MEDIUM TO INCREASE SECONDARY METABOLITES PRODUCTION AS ANTIOXIDANT

by Evy Yulianti, Ixora Sartika Mercuriani, Paramita Cahyaningrum Kuswandi, Lili Sugiyarto

ABSTRACT

Diabetes is one of the diseases suffered by many Indonesians. Hyperglycemic conditions in diabetics can cause oxidative stress that can trigger complications. Several studies have succeeded in finding medicinal plants that have potential in the diabetes treatment of, one of which is orchids. Increasing the content of secondary metabolites in orchids can be done in vitro, by modifying the growth medium of orchids grown with plant tissue culture techniques so as to induce the production of beneficial secondary metabolites. For this reason, the purpose of this study is to obtain *Dendrobium antennatum* orchid growth medium with various elicitor ingredients that can trigger the production of secondary metabolites, determine the content of secondary metabolites and test the ability of these secondary metabolites as antioxidants. Elicitor materials used in this study were chitin and cellulose in various concentrations. Secondary metabolites are qualitatively tested. Orchid extract is obtained by maceration method using ethanol. The extract was tested for its antioxidant ability by the DPPH method. The results showed that *Dendrobium antennatum* orchid growth medium consisting of New Phalaenopsis medium and coconut water coupled with elicitor ingredients can trigger the production of secondary metabolites and did not interfere with plant growth. The content of secondary metabolites of *Dendrobium antennatum* orchids grown in growth medium with various elicitor ingredients were saponins, phenols, steroids, flavonoids and tannins. Secondary metabolites obtained from plants grown in medium containing elicitors have the ability as antioxidants higher than controls, it appears from the % antioxidant and IC50 value.

Kata Kunci: *Dendrobium antennatum*, orchid, secondary metabolites, elicitor, antioxidant