ABSTRACT

INTERGENERIC SOMATIC HYBRIDIZATION BETWEEN *D. striaenopsis* and *P. amboinensis* BY PROTOPLAST FUSION

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Somatic hybridization is one of the technologies with protoplast fusion technique carried out on plants that have sexual barriers, for example plants that have distant kinship relationships (between genera) and sterile plants or plants that can only be propagated vegetative. Development of superior plants or assembly of new hybrids (new varieties) with a variety of desires that are expected for example new hybrids on orchid plants to produce a variety of flower patterns that are different from before.

This research was conducted in 3 stages: (1) Isolation of *D. striaenopsis* orchid protoplasts. (2) Isolation of orchid protoplasts from *P. amboinensis*. (3) Fusion of *D. striaenopsis* and *P. amboinensis* protoplast. The aim of the study was to obtain the right protoplast isolation method in *D. striaenopsis*and orchid plants *P. amboinensis* to obtain protoplast which is viable and obtained the chemical fusion method using polyethylene glycol (PEG) concentration and incubation time at the protoplast fusion between *D. striaenopsis*orchids and *P. amboinensis*. The research method used a completely randomized design (CRD), protolasts isolation of 3 factor *Dendrobium striaenopsis*, protoplast isolation of 2 factors *P. amboinensis* and protoplast fusion between *D. striaenopsis* dengan *P. amboinensis* 2 factors each 3 replications.

The results of the research showed that: (1). There was an interaction effect with less enzyme concentrations in the incubation time *D. striaenopsis*i treatment *(cellulose* + *macerozyme* 1.0% + 1.5% - 6 hours) drove protoplas 9 x $10^{5,}$ while 48.78% of viable protoplasts. The interaction of the enzyme with osmoticum (*cellulase* enzyme 1.0% + *macerozyme* 1.5% - 0.6) resulted in the number of protoplast 6.6 x 10^{5} and viability (cellulase enzyme 1.5% + macerozyme 0.5% + 0.6 M) percentage of protoplasts reaching 59.7%. Interaction with osmoticum with the hours produced by treatment (sucrose 0.6 M - 6 hours) the number of protoplast 5.8 x 10^{5} with viability of 48.24%. (2). In isolation of orchid protoplasts *P. amboinensis* interacted between enzyme composition and incubation time in treatment (*Cellulase* 1.0% + *Macerozyme enzyme* 1.5% - 6 hours) resulting in protoplast numbers 1.03 x 10^{6} and 87.25% viable protoplasts. (3). There is a real interaction between the concentration of polyethylene glycol (PEG) and the incubation time in the fusion of orchid protoplasts *D. striaenopsis* with *P. amboinensis* on heterofusion results (PEG 6000 concentration 30% - 30 minutes) the success of the percentage of heterofusion reached 21.42% and *P. amboinensis* F1T2 homofusion (PEG 6000 concentration of 10% - 4 hours) the percentage reached 20.33%.

Keywords: somatic, intergeneric hybridization, *Dendrobium striaenopsis, P. amboinensis,* fusion, protoplasts