

## **Adaptation *Dendrobium spectabile* (Blume) Miq. Orchid on MUS-1998 Media Added by Sugar Alcohole and Antimicrobial`**

Untung Santoso, Y. Sri Wulan Manuhara and Kusriningrum.

### ABSTRACT

Acclimatization process of orchid seedling from *in vitro* to *ex vitro* environment was an important phase. Nevertheless, commonly the seedlings were could not stay alive in this phase because of the extreme alteration of the environment. In *in vitro* environment, the nutrient for the seedling was always available and the environment was also under control. The opposite happened on *ex vitro* environment which the nutrient availability and the environment were unpredictable. The environment's alteration forced the seedling to adapt in physiology and structural. The purpose of this research was to determine the adaptation capability of *in vitro* orchid in the acclimatization process by using MUS-1998 media which was added by sugaralcohol and antimicrobial. The MUS-1998 was used to increase the nutrient availability. The sugaralcohol was used as the source of vitamin C as well as increase the humidity of *in vitro* environment. Meanwhile, the antimicrobial was used to inhibit or even eliminate the contamination which could slay the plants. This research used experimental research design by applying randomized block design, two factors and three repetitions. The result of this research showed that: (1) the combination treatment between sugaralcohol and antimicrobial on MUS-1998 had influence to the adaptation and growth capability of *Dendrobium spectabile* orchid seedling. The combination between sorbitol and ethyl paraben had the best influence on seedling growth than the others, (2) the combination treatment of sugaralcohol level (10-25 g/l) and antimicrobial (2-3.5 g/l) on MUS-1998 media gave the same influence on seedling growth and adaptability of *Dendrobium spectabile* orchid seedling (3) there were some differences between controlled seedling and acclimatization seedling on MUS-1998 media which was added by sugaralcohol and antimicrobial: anatomy, physiology and biochemistry aspects (4) in general, the *Dendrobium spectabile* orchid's adaptation in the acclimatization in the MUS-1998 media which added by sugaralcohol and antimicrobial was characterized by some processes: (i) in the beginning of acclimatization process, the orchid seedlings had less of canopy growth and some leaves lost, (ii) the formation of vilament tissue, (iii) the alteration of shape, size and amount of stomata, (iv) the increase of proline showed there was stress metabolism, (v) the increase of chlorophyll showed there was an effective process of photosynthesis, (vi) the growth was increasing, (vii) there were some new shoots sprout up.

**Key words:** Acclimatization, adaptation, *Dendrobium*, sugaralcohole, antimicrobial.