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MATURA SIRIJUNTARUT : *IN VITRO* STUDIES ON SEED GERMINATION AND PLANT GROWTH OF *VANDA* AND *PHAIUS*. THESIS ADVISORS : SARINEE CHAICHAROEN, M.Sc., PUANGPAKA SOONTORNCHAINAKSAENG Ph.D. 99 P. ISBN 974-664-245-6

The seeds of *Vanda brunnea* authors and *V. denisoniana* authors were cultured on the combination of modified Vacin & Went media plus minor elements, vitamins and iron of Murashige & Skoog (mV) supplemented with or without 100 g/l raw banana (B), potato extract (P) and different concentrations at 0, 5, 10 and 20 g/l of saccharose (S). The highest percentage of germination (about 75 %) was found on mV medium containing 100 g/l raw banana and 100 g/l potato extract without saccharose. In addition, the seeds of *Phaius tankervilleae* authors were cultured on mV and modified Vacin & Went plus iron of Murashige & Skoog (V) supplemented with or without 100 g/l raw banana (B) and 100 g/l potato extract (P) without saccharose (S). They showed the highest percentage of germination (about 85 %) on V medium supplemented with 100 g/l raw banana without saccharose.

It was found that the mV medium supplemented with 100 g/l raw banana ,100 g/l potato extract and 20 g/l saccharose was suitable for the development of *V. brunnea*, *V. denisoniana* and *V. coerulea* plantlets. The seedlings of *P. tankervilleae* in full and half strength solid mV medium without saccharose had a faster growth rate than those grown on full and half strength V medium. The investigation on the effect of two additive substances, namely, 100 g/l raw banana and 100 g/l potato extract, was conducted on *P. tankervilleae* plantlets. The results showed that V medium supplemented with 100 g/l raw banana without saccharose was suitable for the growth of *P. tankervilleae* seedlings. The effect of the media between with or without potato extract and raw banana on development of *V. coerulea* plantlets was studied. The results showed that the plantlets on the medium supplemented with potato extract were more well-developed than raw banana medium. The comparison between the effects of media mV and V on development of *V. coerulea* plantlets showed that they were not different.

The study on the effect of light intensity on *V. coerulea* and *P. tankervilleae* plantlets showed that the best dry weight and leaf were found at the light intensity of 4,000 lux. Hence, the light intensity of 4,000 lux was most suitable to culture *V. coerulea* and *P. tankervilleae* plantlets.