Sunisa Sangvirotjanapat 2008: A Study on the Effects of Paclobutrazol and Chitosan on Growth and Development of *Platycerium ridleyi* H. Christ. Young Sporophytes. Master of Science (Agriculture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Associate Professor M.L. Charuphant Thongtham, M.Sc. 64 pages.

Platycerium ridleyi H.Christ. is one of the rare epiphytic ferns which are close to extinction in their natural habitat. At present, the propagation of *P. ridleyi* is done by sporing and *in vitro* culture, but during the transplanting of the young sporophytes. The sudden change from the closed environment of the culture causes high percentage of losses. In this investigation, we aimed to study the effects of paclobutrazol and chitosan on the survival rates of young sporophytes of *P. ridleyi* and the physiological performance of this particular fern. The experiments were divided into 3 parts.

In the first experiment, in order to study the effects of different concentrations of paclobutrazol on young sporophytes of *P. ridleyi*, the culture medium was drenched with paclobutrazol solutions. The result showed that paclobutrazol at 40 ppm resulted in a mortality rate of 63.33 percent, with the highest width, length, number of frond, root/shoot ratio and lamina thickness at 1.66 cm., 1.98 cm., 3.11 fronds, 2.00 and 0.20 mm., respectively. In the second experiment, the culture medium was drenched with different concentrations of chitosan. The result showed that chitosan at 90 ppm gave a mortality rate of 66.67 percent with the highest width, length, number of frond, root/shoot ratio and lamina thickness at 1.4cm, 1.98cm, 4.56fronds, 0.74 and 0.18mm., respectively. In the third experiment, it was found that paclobutrazol at 40 ppm and chitosan at 90 ppm showed photosynthesis rate, transpiration rate, photosynthesis rate/transpiration rate ratio with no different from treatment control and CO_2 respond curve of photosynthesis rate showed some fluctuation among its foliages, therefore the influences of paclobutrazol and chitosan to this fern species can not be concluded.

S. Sang. M.L.C.ft 29 / 5 / 2008

Student's signature Thesis Advisor's signature