Nattachai Yampikulsakul 2008: *In Vitro* Clonal Propagation of *Platycerium ridleyi* H. Christ. Master of Science (Agriculture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Associate Professor Surawit Wannakrairoj, Ph.D. 70 pages.

Platycerium ridleyi H. Christ. is a popular fern due to its unique up-right branch frond, similar to a deer horn. This study was aimed to clonally multiply the plant *in vitro*. In the first stage, two types of young fronds, fertile and sterile frond, were cut and sterilized in 3% H_2O_2 for 15 minutes or 10% povidone-iodine (PVI) for 10, 20 or 30 minutes. The explants were then cultured in half strength Murashige and Skoog (1962) (1/2 MS) with 20 g/l sucrose. The result shown that basal parts of sterile frond had the lowest clean score. All disinfestation methods gave a statistically similar cleaning result. Using 10% PVI led to a high regeneration score. The adventitious buds and rhizoid could develop within 5 weeks. For multiplication, entire frond, about 1 cm. long, were cultured on a 1/2 MS medium with 20 g/l sucrose and 0, 0.50 or 1 mg/l BA under white, red, blue light or dark condition. Adventitious buds developed directly from leaf tissue without callus formation in all culture conditions. Multiple shoot was best formed when cultured on BA-free media under white or red light. For root induction, the new shoot were cultured on media of 1/4 or 1/8 MS with 20 g/l sucrose and 0, 0.25, 0.50, 0.75 or 1 mg/l NAA. The result showed that high number of root per shoot and high score of rhizoid growth was obtained from the 1/8 medium with 0.25 mg/l NAA. For *extra vitrum* transplanting, plantlets were transferred to peat moss media and incubated in a moisted plastic bag. The plastic bags were cut to make an additional hole (1.27 cm^2) every 2 days or were opened every night for a week. The result showed that the survival and growth rate after 4 weeks in nursery was higher with hole-cutting acclimazation technique.

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Thesis Advisor's signature — 23 / 05 / 08