Worarat Boonsanongsupa 2006: *In Vitro* Culture of Some Species in Genus *Uvaria*. Master of Science (Botany), Major Field: Botany, Department of Botany. Thesis Advisor: Associate Professor Malee Nanakorn, Ph.D. 109 pages.

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In vitro shoot multiplication of some *Uvaria* spp.; *U. lurida* Hook.f. & Thomson, *U. grandiflora* Roxb. ex Hornem. var. *grandiflora* and *U. rufa* Blume, were conducted. Nodal explants collected in three seasons were compared for surface sterilization. The explants collected in summer (March-May) gave the lowest percentage of contamination and the highest percentage of survival. Antibiotics were used for prevention of contamination from endophytic microorganisms. Among 4 antibiotics, rifampicin was most effective.

Leaf abscission was the main problem for *in vitro* culture of these three species. Therefore, the effects of $AgNO_3$ at 0 and 29.4 μM were determined in the combination with 0-20 μM BA in MS semi-solid medium on shoot growth for 4 weeks, followed with culturing on the same medium without BA for 4 weeks. The addition of $AgNO_3$ could effectively reduce leaf abscission at 80% in *U. lurida* and 81.3% in *U. grandiflora*. $AgNO_3$ had no effect on shoot multiplication (average shoot number and shoot length) of *U. lurida* while BA had some effects on both parameters. BA at 10-15 μM gave the highest average shoot number of 2.1-2.3 shoots and 0 μM gave the highest average shoot length of 0.84 cm. In *U. grandiflora*, $AgNO_3$ affected on new shoot length but not on shoot number. The addition of $AgNO_3$ gave a higher average shoot length than without $AgNO_3$. BA at 15 μM gave the highest average shoot number of 4.2 shoots while BA at 0 μM gave the highest average shoot length of 0.97 cm. In *U. rufa*, 10-15 μM BA gave the highest shoot number of 1.8-2.1 shoots and 0 μM BA gave the highest shoot length of 0.64 cm. In *U. lurida*, the new proliferated shoots were short, therefore, the effect of 0-5 μM GA_3 on shoot elongation was determined in combination with 10 μM BA and 29.4 μM $AgNO_3$. After 4 weeks, explants were transferred onto the basal MS medium for another 4 weeks. It was found that GA_3 can stimulate shoot elongation with the best result at 3 μM. The effects of TDZ on shoot multiplication were also studied. The nodal explants were cultured on MS medium added with 0-20 μM TDZ for 4 weeks and then transferred onto the basal MS medium for 4 weeks. TDZ at 15 μM gave the highest shoot number of 2.6 shoots while TDZ at 0 and 10 μM gave the highest shoot length of 0.84 cm. Rooting of new shoots was attempted both under *in vitro* and *in vivo* conditions. However, root induction in *U. lurida* and *U. grandiflora* under *in vitro* cuture did not succeed. *In vivo*, the cut ends of the shoots were dipped in aqueous solution of IBA or NAA and implanted into growing media. Only shoots of *U. lurida* dipped in IBA at 8,000 μM could induce root of 20 %.

Young leaves of *U. lurida* and *U. rufa* were cultured on MS medium supplemented with 0-2.5 μM NAA in combination with 0-30 μM BA to induce morphological change. In *U. lurida* only the callus was found while in *U. rufa* the callus, nodule and globular somatic embryo were induced.

Worarat Boonsanongsupa — Student's signature

Malee Nanakorn — Thesis Advisor's signature — 19 / May / 06