Savinee Laithong 2012: *In Vitro* Culture of *Afgekia mahidoliae* Burtt et Chermsir. Master of Science (Botany), Major Field: Botany, Department of Botany. Thesis Advisor: Associate Professor Malee Nanakorn, Ph.D. 58 pages.

In vitro shoot multiplication of *Afgekia mahidoliae* Burtt et Chermsir. was conducted by using nodal explants and cultured on ½MS semi-solid medium supplemented with 0.0-4.0 µM TDZ or BA for 4 weeks followed by sub-culturing on the same medium without growth regulator for 4 weeks. TDZ at 0.5-4.0 µM gave higher shoot number (3.0-3.8 shoots) than BA 0.5-4.0 µM (1.6-3.0 shoots) and 1.0 µM TDZ gave the highest shoot length of 11.8 mm. However, new shoots were too short; therefore, two methods for shoot elongation with GA_3 were studied: 1) cultured nodes on ½MS semi-solid medium supplemented with 2.0 µM TDZ for 4 weeks followed by sub-culturing on the same medium supplemented with 0.0–15.0 µM GA_3 for 4 weeks 2) cultured nodes on semi-solid MS medium supplemented with 2 µM TDZ in combination with 0.0-10.0 µM GA_3 for 4 weeks. The results showed that the first method, cultured the explants on TDZ and followed by using 10 µM GA_3 gave the highest shoot length of 14.0 mm or the shoot length was 1.8 folds higher than when cultured on GA_3 free medium and it also showed better result than the second method. For root induction, *in vitro* shoot were cultured on ½MS semi-solid medium supplemented with 0.0-15.0 µM NAA or IAA for 4 weeks or dipped the shoot end in 0.0-5.0 mM NAA or IAA solution for 5 minutes and implanted on growth regulator free ½MS semi-solid medium for 4 weeks. Only 15.0 µM NAA was able to induce root at 12.5 % and root length of 12.3±3.3 mm.

Internodes of *A. mahidoliae* were cultured on MS semi-solid medium supplemented with 0.0–15.0 µM 2,4-D, NAA or IAA for 4 weeks. NAA at 5 µM gave the highest callus weight of 1.223 g but callus could not develop to any structures.

_____ _____ ___ / ___ / ___

Student's signature Thesis Advisor's signature

ลิขสิทธิ์ มหาวิทยาลัยเกษตรศาสตร์