Graduate school
faculty of Agriculture

Dissertation for MS.c Degree in Plant breeding Science

The Effect of hormones and explantes on tissue culture of *Ducrosia .anethifolia*

Supervisor:
Dr. M. Heidari
Dr. M.Omidi

Co-Supervisor:
MS.c. Mahdinejad
Dr. Abdoli

By:
R. Ashtari

October 2008

Abstract

Ducrosia. anethifolia (DC.) of family Apiaceae has a restricted distribution, mainly in Afghanistan, Iran, Iraq and Pakistan. In traditional medicine it is used to treat catarh, headache and backache. The aerial parts of *Ducrosia. anethifolia* demonstrated activity against a panel of fast growing mycobacteria There are number of constraints for seed propagations of the main problems that prevent sustainable use of this medicinal plant is that germination under laboratory conditions. Seeds of *D.anethifolia* (DC.) have long period of dormancy, which decrease seed dormancy period. The aim of this project was to study the effects of different chemical and physical factors as running water, temperature and GA_3 at 23±2˚C and 4˚C, scratching (seed pre-treatment with acids at 23±2˚C) on germination and seed dormancy breaking on filter paper and soil for 3 months. for tissue culture of plant, different parts of plants were cultured on MS basal medium supplemented with different concentrations of cytokines (Kin, BAP) and auxins (NAA), (2,4-D), (IAA) and (IBA) for study of callus formation, organogenesis and regeneration. The results of seed germinations showed that seeds treatment with running water (14 day) was most effective factor for dormancy breaking. Also seeds were cultured on 1/4 MS medium basal was best treatment. The results of from tissue culture of plant parts indicated that stem and leaf had more potentials than other parts for production and growth of callus. Also MS basal medium supplemented with 1 $mg.l^{-1}$ BAP with 2 and 3 $mg.l^{-1}$ NAA resulted in better responses of callus formation. The stem segments were more responsive to formation of shoot. As maximum percent (15٪) and mean number of shoot per expellant (10) was achieved on MS basal medium supplemented with $1mg.l^{-1}$ BAP and 0.4 $mg.l^{-1}$ NAA. The best percent rooting ٪78.and mean number 15 of roots per shoot was obtained on 1/4 MS free growth regulators. The plantlets were acclimatized with ٪30 .survival in greenhouse.

Ḱayword: *Ducrosia. Anethifolia*, Tissue culture, regeneration, Organisation, Medium basal MS