

## ABSTRACT

### INVESTIGATION OF EARLY DEVELOPMENT STAGES AND SPORE GERMINATION IN SOME BRYOPHYTE SPECIES UNDER *IN VITRO* CONDITIONS

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M.Sc. Thesis, Department of Biology

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2014, 68

In this study, *in vitro* spor germination and early developmental stages of *Grimmia dissimulata* E. Maier, *Dicranella varia* (Hedw.) Schimp., *Syntrichia ruralis* (Hedw.) F. Weber & D. Mohr, *Syntrichia laevipila* Brid. and *Syntrichia princeps* (De Not.) Mitt. have been investigated. Germination was held on distilled water (DW) containing 1.5% sucrose and ½ Murashige and Skoog (MS) medium without sucrose. Germination percentages were 94% and 51% respectively. *Dicranella varia* gave germination in DW media with or without 1.5% sucrose and ½ MS medium. Germination rates were 50%, 48% and 56%. Germination in *Syntrichia ruralis*, *Syntrichia laevipila* and *Syntrichia princeps* was only observed in DW medium containing 1.5% sucrose. Germination rates were 34%, 54% and 43%. In all species examined, the germination was in exosporic type and two different sporeling pattern has been observed. In *Grimmia dissimulata*, *Dicranella varia* and *Syntrichia laevipila* sporeling type is *Bryum* type. In *Syntrichia ruralis* and *Syntrichia princeps* sporeling type is *Encalypta* type. *Grimmia dissimulata*, *Syntrichia ruralis*, *Syntrichia laevipila* and *Syntrichia princeps* post protonemal development could not be observed after three months. In *Dicranella varia* protonemata produced gametophore buds and then healthy gametophytes.

**Key words:** *Grimmia dissimulata*, *Dicranella varia*, *Syntrichia laevipila*, *Syntrichia ruralis*, *Syntrichia princeps*, *in vitro*, spore germination, protonemata