

Investigation on Germination and Tuberization of Blackzira (*Bunium persicum*) via Tissue Culture Methods

S.M.Ziaratnia

Iranian Research Organization for Science & Technology Mashhad, IRAN

Blackzira (*Bunium persicum*), is one of the most important medicinal and spice plant that has been considered from ancient times in Iran. This plant is perennal and native of eastern Iran. Problems of seed germination and subsequent seedling growth of Blackzira are one of the important factors that farmers have not paid attention to it so far.

The main purpose of this investigation was to study application of different tissue culture methods from germination to whole plant.

The germination of Blackzira required chilling temperature. For this stage, seeds cultured in medium that contained only 0.5 percent sugar. Then stored in 4–5°C for at least 3–4 weeks. The rate of seed germination in this medium was better than others.

Whole plants were produced from germinated seeds. These seeds cultured on MS basal medium, then stored at 24°C and 16 h photoperiod. At this condition cotyledons appeared and then one tuber was formed at the end of root. Generally, after one month since formation of tubers, true leaves appeared. This process continued until forth leaf.

In a separate experiment the effects of different concentrations of sugar on tuber size of Blackzira was non significant. While different levels of nitrogen and amonium to nitrate ratio was significant. The medium which contained 30 mm nitrogen was more effective than 60 mM on lenght and diameter of tubers. Also among of different ratio of amonium to nitrate indicated that, firstly, for production of larger tubers required both sources of nitrogen (amonium to nitrate) secondly, nitrate had more effect on tuber size. In another experiment effect of different strenght of MS basal medium (MS, $\frac{1}{2}$ MS, $\frac{1}{2}$ NO₃) were studied on weight, length and diameter of tuber. In this study, it was observed there are not any differences between media, but in all of charactristics, $\frac{1}{2}$ MS had higher means.