

Responses of Germination and Early Growth of *Scorzonera* (*Scorzonera Hispanica* L.) to pH, Mineral Deficiencies and Growth Substrates

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Abstract

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In order to identify early constraints to scorzonera cultivation, seed germination under a range of pH values, the response of plantlet growth to six different mineral deficiencies and to different growth substrates were investigated in laboratory and outdoor pot experiments. Total germination, time needed for germination to begin and to finish and asymmetry of germination distribution over time was insensitive to pH within the range 5–10. Generalized and clear symptoms of mineral deficiency in plantlets younger than two months were only found in the absence of iron. Significant reductions in shoot and total biomass were found in the absence of magnesium or iron and in the later also in root biomass. Very young scorzonera plantlets seem thus to be able to rapidly accumulate enough mineral reserves to sustain subsequent growth during a considerable period. After seven months growing outdoors, scorzonera plants especially the roots, grew significantly better in a very light texture mixture of sand and vermiculite than in a heavier commercial growth substrate. Altogether, these results suggest that scorzonera is a species able to grow in less favourable environments, thus offering good prospects for its cultivation as cash crop in marginal and less productive soils.

Key words: germination; growth substrate; mineral deficiencies; pH; plant growth; *Scorzonera hispanica*

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