increasing germination, spores germinate more rapidly, after 4 months, on media with ammonium ions or without nitrogen. Early gametophyte growth is faster with ammonium–nitrogen.

Effects other than those of the culture conditions on spore germination or viability can be investigated by using a nutrient medium with ammonium–nitrogen which allows almost total spore germination. The ability of fresh spores to germinate varies from plant to plant with it being as high as 92% and as low as 5%. Storage of spores at room temperature for 3 years eliminates their viability. Spores stored at 4°C for 6 months give 50% better germination than spores from the same batch stored at room temperature; however, fresh spores from this batch gave 20% better germination than the spores stored at 4°C. Spore storage at −20°C is under investigation; hopefully the below freezing temperature will extend the viability of *Psilotum* spores for many years.

Electrophoretic studies of proteins in *Selaginella kraussiana* stems, leaves, roots and 'rhizophores'

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The enigmatic nature of 'rhizophores' in *Selaginella* has stimulated much work on the structure, development and physiology of organs in this genus. One of the goals of such work has been to understand the morphological homology of rhizophores, while another has been to understand the developmental relationships between rhizophores and subterranean roots. This work represents the application of biochemical techniques to the analysis of the similarities and distinctions in soluble proteins between the various organs, and provides new information for application to classical problems in the genus.

Soluble proteins were precipitated from homogenates of fresh stems, ventral leaves, aerial roots (rhizophores) and subterranean roots of greenhouse-grown clones of *Selaginella kraussiana* A. Br. Proteins were separated by one- and two-dimensional polyacrylamide gel electrophoresis. Some 44–51 protein bands were resolved on 1-D gels stained with Coomassie brilliant blue, with approximately 75% of these bands common to stems, leaves, roots and rhizophores. Two-dimensional separation followed by silver staining permitted detection of 200–250 protein spots per organ, again with approximately 75% of the spots common to all organs. However, qualitative and quantitative differences existed between organs. Based on 1-D analysis, stems and rhizophores had the largest number of bands in common (46 out of a possible 52) and the largest number of bands (6) common only to them. Subterranean roots and rhizophores had 41 out of 53 bands in common but no bands common only to them. Two-dimensional gels, while more complicated to analyse, showed similar trends, with the greatest quantitative and qualitative similarities between stems and rhizophores and lesser similarities between rhizophores and roots.