

Mycorrhizas in Epacrids

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Epacrids are widespread in southern Australia and show many beautiful forms and flowers. As a result they are of interest to gardeners, although they are typically difficult to germinate. Germination depends on smoke-treatment of the seeds in some WA species. In the local *Woollisia pungens*, smoke is not required but germination is very slow, with most seedling emergence between 3 and 8 weeks after sowing. *W. pungens* seedlings are very small and they have a juvenile stage which can last for a year and a half. *Lysinema ciliatum*, the 'Curry Flower' from WA, can be grown from cuttings. *W. pungens* and *L. ciliatum*, like other epacrids, have very fine mycorrhizal 'hair-roots' only a few tens of micrometres in thickness. In the 'Mediterranean' climate of southwestern WA the hair-roots are found in autumn, winter and spring, but disappear in the hot dry summer. In Sydney, however, (in a 'La Niña' year) we found hair-roots all through the year on *W. pungens*. The outer layer of cells of epacrid hair-roots becomes infected with fungi that form a mycorrhiza of the special ericoid type. The fungi penetrate the thick-walled cells of the hair-root epidermis and we hypothesise that the thick-walled cells assist the survival of the fungus from year to year. In a growth experiment *Woollisia pungens* seedlings failed to grow and develop when they were not provided with a mycorrhizal fungus, but after inoculation with a mycorrhizal fungus there was good seedling growth. We suggest that if this species is to be used in horticulture the grower must be very patient, must ensure mycorrhiza formation either by inoculum in natural epacrid-growing soil or by epacrid mycorrhizal fungus isolates, must be very careful to preserve the hair-roots during transplanting, and must harden-off the seedlings carefully before planting out.

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