Micropropagation of Native North American *Lilium* Species©

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Three native North American *Lilium* species were studied for their ability to be micropropagated. These species were: *L. canadense* L., *L. michauxii* Poir., and *L. philadelphicum* L. Currently, there is no literature published on the in vitro culture of these native lily species. As natural habitats decline, the populations of native plants also decline. Micropropagation is a tool to produce and conserve native plants for use in the horticulture industry and to lessen the effects of collecting in the wild.

Past in vitro research with *L. japonicum* Thunb. and *L. speciosum* Thunb. bulbs demonstrated that their bulbs respond well to tissue culture. According to their research, the addition of growth regulators to lily tissue cultures is not required for micropropagation. However, for commercial use, the balance between low quantities of cytokinins and lower quantities of auxins has been beneficial for increased production. Protocols for the micropropagation of *L. canadense*, *L. michauxii*, and *L. philadelphicum* have been developed by studying factors such as the type of growth regulator used and its concentration, sucrose concentration, light intensity, and temperature regime. Individual bulb scales of uniform size from each of the species were cultured on the cytokinins 6-benzylaminopurine (BA), 6 (γ,γ –dimethylallylamino) purine (2iP), and kinetin at concentrations ranging from 0 to 20 mM. They were also tested at sucrose concentrations of 0%, 3%, 6%, 9%, and 12%. Studies with light intensity compared continuous light regimes to complete darkness and reduced light intensities. Cultures were also grown at three different temperatures: 18°C, 21.5°C, and 25°C. The basal medium for all experiments was the Murashige and Skoog salts and vitamins. The data that were collected included total fresh weight, per cent fresh weight increase, callus formation, and the production rate of new bulbs. These data will be presented.