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BREEDING AND DEVELOPING OF CHILEAN GEOPHYTES

MEJORAMIENTO Y DESARROLLO DE GEÓFITAS CHILENAS

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Interspecific and intraspecific hybrids of different geophytic plant species from Chile are being made at Cornell University in the United States with the cooperation of two Chilean universities. The goals of this research are (1) to breed novel, commercially valuable plants from natural crosses for the eventual introduction to the commercial market and (2) to develop *in vitro* and *in vivo* protocols for the growth and production of these unique plants. Geophytic species such as *Rhodophiala, Alstroemeria, Conanthera, Leucocoryne, Zephyra,* and others are being used for this research. As new hybrids and cultivars are developed, research is completed to develop production and propagation protocols for them. These novel plants may be used as potted plants, cut flower crops, or herbaceous garden varieties.

Biotechnological techniques such as embryo culture, somaclonal variation, *in vitro* mutation techniques, meristem culture, and micropropagation are incorporated into the breeding program to elicit novel changes from the germplasm. As a result of this research, a new cultivar of *Alstroemeria*, called 'Mauve Majesty', was patented and introduced by Cornell University in 2007. This plant is noteworthy by its winter hardiness and long flower stems. The *Alstroemeria,* also known as the Inca Lily, is a popular cut flower and garden plant in the United States.

There is a wealth of plant species from Chile that have yet to be discovered, studied, developed, and enjoyed. This project demonstrates the enormous potential for new plant development that exists. As the demand for new and special products in the floricultural market expands, the discovery of new genetic sources and the development of new commercial, ornamental plants will keep agricultural production systems highly competitive in the global economy and will enhance the quality of life.