

Molecular and morphological characterization of new interspecific hybrids of alstroemeria originated from *A. caryophylleae* scented lines

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Alstroemeria is a genus native to South America from which many varieties of ornamental plants have been developed and introduced into the market. Interspecific hybridization followed by embryo rescue has been one of the most common breeding techniques to obtain new varieties. This study was aimed at obtaining alstroemeria hybrids through interspecific crosses using novel scented parental lines and assessing these hybrids. A total of 3669 embryos were rescued, from which 18 flowering plants were morphologically evaluated. Flower stem length ranged from 25 (14E07) to 83 cm (14A11) and most of the flowers showed pink/white colors with stripes over the inner tepals. Only 3 hybrids were perceived as scented and one of them (14E08) was evaluated through GC-MS analysis, detecting 9 VOCs, all of them monoterpenes. Molecular analysis using RAPD markers clustered two main groups: (A) hybrids with *A. pelegrina* as parental line and (B) hybrids coming from the crossing UC05 × C3 and its reciprocal. Moreover through this analysis was possible to subcluster hybrids coming from different seasons. A protocol for obtaining alstroemeria hybrids was successfully developed for this species using molecular and phenotypic evaluation to provide information about their pedigree and to spot those traits which are attractive for the ornamental plant market. © 2019, The Author(s).

Alstroemeria

Breeding

Embryo rescue

Floral scent

Monoterpene

RAPD