

Invited keynote lecture

STRATEGIES FOR LILIUM PROPAGATION: TRADITION VS BIOTECH

Barbara Ruffoni, Carlo Mascarello

CRA-FSO Research Unit for Floriculture and Ornamental Species, Sanremo (IM), ITALY

barbara.ruffoni@entecra.it

Genuine lilies belong to the *Lilium* family consisting of approximately 100 species in the Eurasia and North American continents. Most lily species originate from South-East Asia (China, Korean peninsula and Japan). Another large group of species comes from North America. The number of native European and Caucasian (Eurasian) species is approximately 10. Lily species have been used as ornamental plants for centuries.

Lily species are divided into two main groups according to their germination type; epigeal seeds germinate immediately after sowing without showing any signs of dormancy. Hypogeal germination is usually controlled by dormancy which breaks only after the seed has been exposed to cold treatment. It's possible to propagate vegetatively Lilies in three ways: by using bulbils from the stem, from bulblets around the stem base, and from scales, scales give the largest quantity of new plants.

Bulbous plants, like lilies, have proved to be ideal for tissue culture, as their regeneration potential is usually high. Furthermore, the compact structure of the shoot makes them easy to handle both in solid and in liquid cultures. Nowadays, lilies are one of the most important bulbous crops produced in tissue culture also in an industrial scale.

Combining the benefits of mass production and fast regeneration of uniform plant material in tissue culture is a necessity for the future breeding and culture of lilies. However, to make tissue culture a commercially relevant production system, production protocols need to be developed separately for each plant crop and cultivar.