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Titolo STUDY ON GAMETIC EMBRYOGENESIS VIA IN VITRO ANTHOR AND ISOLATED MICROSPORE CULTURE IN FRUIT CROPS [Tesi di dottorato]
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Sommario

Fruit breeding is mainly based on both conventional (hybridization, mutation and selection) or biotechnological methods (somatic hybridization, genetic transformation and haploid production). The genetic improvement through the conventional methods is limited by many factors such as fruit trees long juvenile period, high heterozygosity, large size and sexual incompatibility. Haploids and doubled haploids, obtained through gametic embryogenesis have a potential use in fruit crops genetic improvement. The change of the microspores fate from the normal gametopytic pathway towards the sporophytic induction is affected by numerous factors. Genotype, medium composition and stress were considered the most important factors required to switch the pollen embryogenic development. During this doctoral course, researches have been carried out on gametic embryogenesis in different fruit crops via anther and isolated microspore culture. Particularly, for the first time, embryos were obtained by isolated microspore culture technique in Citrus spp. Moreover, somatic embryogenesis callus and regeneration of plantlets were achieved via anther culture in blood sweet oranges, *C. sinensis* L. Osbeck, cvs. Moro, Tarocco Meli, Tarocco TDV and Tarocco S. Alfio, homozygous callus, embryos and plantlets were instead obtained from Citrus clementina Hort. ex Tan. cvs. Hernandina and Corsica.

These results represent an advancement of plant breeding and propagation techniques in Citrus spp. Research has been also carried out on *Olea europaea* L. gametic embryogenesis, multicellular structures have been obtained from anther and isolated microspore culture, as the first step towards haploid olive embryos production. Furthermore, a preliminary experiment has been carried out on of several hazelnut (*Corylus avellana* L.) cultivars to obtain regeneration through anther and isolated microspore culture.

Localizzazioni e accesso

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