The System Establishment of Micro Grafting between in vitro Regeneration Buds and Seedling Rootstocks in Peony

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Peony (Paeonia suffruticosa Andr.), the first candidate of Chinese national flower, not only has high ornamental value but also well known for its medical, edible, and economic value. Because of quite long conventional breeding period, the micro propagation technology has been given high expectation. However, the rooting ratio of regenerated shoots has been low and the quality of roots is not good enough to survive when transplanted into soil. To solve the problems,this study is the first time to successfully establish micro grafting system between in vitro shoots and seedling rootstock of peony.The basic protocol is as follows: (1) in vitro shoots of peony are cultured in WPM for 12 weeks; (2) the stem base of peony vitro shoots is sliced to produce vitro scion for micro grafting; (3) the shoots soak in healing promotion agent with 0.3 mg/L NAA and 0.2 mg/L MET for 20 minutes; (4) the shoots are grafted to 3-year-old same species of peony rootstock with the agent injected into the incision that is then fixed with parafilm to form micro grafting system between in vitro shoot and seedling rootstock; and (5)the micro grafting system is cultured under 26? and 80% relative humidity in dark for two weeks and then in light for two weeks, finally transferred to normal artificial culture condition. This experiment was conducted 3 times. The results showed that the average 4-week survival rate is 30.59%. This micro grafting system between vitro shoots and seedling rootstock provides not only technique support for genetic improvement and related basic research of peony but also certain theoretic reference for in vitro rooting of other woody plants.

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