IVB9 GENETIC STABILITY IN MICRO-CLONES OF *FERONIA LIMONIA* (L.) SWINGLE DERIVED FROM DIFFERENT PATHWAYS OF MICROPROPAGATION AS REVEALED BY RAPD AND ISSR MARKERS

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Feronia limonia (L.) Swingle (Family- Rutaceae) commonly known as wood-apple is a fruit tree of Indian-Subcontinent and widely distributed in South-East Rajasthan (India). Its superior genotypes are also cultivated for edible fruits, gums, wood and alkaloids. Micropropagation efforts for large scale multiplication of identified clones have been made and protocols developed using different pathways. Micropropagation can be rewarding only if complete genetic fidelity of micropropagules is maintained, so it is necessary that micro-clones are screened for their genetic stability. In present study DNA was isolated from micro-clones of *F. limonia* derived from two pathways of micropropagation *i.e.* enhanced axillary branching and callus organogenesis. For enhanced axillary branching pathway, the mature nodal segment and cotyledonary nodes were taken as explants and for callus organogenesis, hypocotyl derived callus were transferred on organogenic medium as per standardized protocols. The DNA was amplified with 53 RAPD primers and 25 ISSRs primers. Out of these primers twenty seven RAPD primers and eight ISSRs primers produced clear, distinct and scorable bands with an average of 8.1 bands per primer. Twenty seven RAPD primers produced 226 bands, out of which 17 were polymorphic and 209 were monomorphic among all the micro-clones. Eight ISSR primers produced 76 bands, out of which only one was polymorphic and rest were monomorphic among all micropropagules. The Jaccard's similarity coefficient revealed that the microclones derived from mature nodal segments showed cent percent similarity with the mother plant while the micropropagules derived from coltyledonary node explants showed 98 percent similarity and the micropropagules derived from callus organogenesis showed 94 percent similarity with the mother plant. It can be concluded from this study that the source of explants and their mode of regeneration has significant effect on genetic stability of micropropagated *F. limonia* plants. Mature nodal segments can be safely exploited as explants for mass multiplication of *F. limonia* as they yielded true-to-the type plants, whereas, organogenesis through callus should be avoided during micropropagation as such plants showed some degree of somaclonal variations.

IVB10 INDUCTION OF *IN VITRO* ANDROGENESIS IN ISOLATED MICROSPORE CULTURE OF *CAPSICUM ANNUUM* L.

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Researchers and breeders have been interested in improvement of doubled haploid (DH) plant production methods for a long time. The efficient methods could accelerate the breeding process and genetic mapping of different traits. These methods are special important in case of out pollinated plant species, like *Capsicum annuum* L. to eliminate the difficulties of self-pollination and isolation during more generations. Depending on plant species, different methods are available for DH plant production.

In *Capsicum annuum* L., anther culture is a well-known technique to achieve this goal, production of DH plants for breeding and research. However, the disadvantages (genotype depending, lot of manual work) of this method initialised the improvement of cell-culture based techniques on androgenesis, for example, shed- or isolated microspore culture.

In case of isolated microspore culture, the microspores are cultured without somatic cells and tissues. This method offers a good opportunity to monitor directly the blocking of gametophytic-, and inducing of sporophytic development. The process of microspore embryogenesis could be tracked step by step. The effect of different stress and treatments can be checked permanently.

In Szeged (most important region of the Hungarian spice pepper production), isolated microspore culture were established and improved. Not only spice, but also sweet pepper genotypes were tested in isolated microspore culture. The critical factors of androgenesis induction were the optimal developmental stages, heat shock and starvation, foreign species ovary co-culture. *In vitro* androgenesis was induced in each genotypes, microspore derived embryoids were obtained. However, the genotype significantly influenced the efficiency.

The main limiting factor of our microspore culture is the plant regeneration rate. In the following period, improvement of embryo production and plant regeneration will be in focus of the experiments.

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