

Marisa Sukpankeaw 2014: Development of Purple Passion Fruit Somaclones for Virus Resistance. Master of Science (Bioproducts Science), Major Field: Bioproducts Science, Division of Science. Thesis Advisor: Assistant Professor Siripatr Prammanee, Ph.D. 142 pages.

Young leaves of virus-free purple passion fruit were used for callus culture on MS medium (Murashige and skoog's medium) supplement with 3 mg/l 2,4-D (2,4-dichlorophenoxyacetic acid) for 9 weeks. The results showed that callus were formed in light green color of compact and friable callus. The both callus were shoot regenerated on MS medium without 2,4-D supplement with vary concentration at 0, 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0 mg/l of BA (Benzyladenine) for 8 weeks. The suitable concentration of BA was 2.0 mg/l which 80 % of compact callus could regenerate their shoots. The shoot propagation were continuous cultured on MS medium supplement with 2.0 mg/l BA for 4 weeks. The root formation was conducted by shoot culturing on MS medium supplemented with 0.4 mg/l IBA for 8 weeks. The whole new somaclone plants were transferred into pot plants in green house. The genetic variation of 40 somaclones were analysed by randomly amplified polymorphic DNA (RAPD). Ten primers were used and generated 16 (14.9%) polymorphic bands. The genetic distances among the 40 somaclone accessions varied from 0.94 to 1.0. The phylogenetic tree constructed using RAPD data that shown in two groups. Three hundred somaclones were selected for passion fruit woodiness virus (PWV) resistance by using mechanical inoculation. Only two somaclones (no. 18 and 79) showed no symptom of disease after inoculation with PWV crude sap for 42 days. Plant inoculation were detected by RT-PCR method. The somaclones no. 18, 79 and healthy showed no band on the gel but other plants disease and control showed RT-PCR product band. The resistant somaclones were successful selection.

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Thesis Advisor's signature