The effect of picloram and light on somatic embryogenesis regeneration of pinneaples

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Abstrak

Smooth Cayenne is the largest pineapple type cultivated in Indonesia, but its vegetative planting materials for mass propagation are limited. Somatic embryogenesis is a potential method to be applied. The aim of this study was to investigate the somatic embryogenesis regeneration under the effect of picloram and light. Callus formation was induced by picloram (21, 41 and 62 μM) added with 9 μM thidiazuron. The calli were transferred onto MS or Bac medium enriched with N-organic compounds with or without addition of 21 μM picloram under dark or light condition. The compact calli were subcultured onto MS medium supplemented with 4.65 μM kinetin, while the friable calli were transferred onto BIG medium (modified MS + 1.1 μM benzyl adenine + 0.9 μM indole butyric acid + 0.09 μM giberelic acid) or B medium (MS + 0.018 mM benzyl adenine). The results showed that the events of somatic embryogenesis were started from cell polarization, asymmetrical division, proembryo formation as embryogenic tissues and friable embryogenic tissues, and embryo development. The best treatment for callus induction was 21 μM picloram. The addition of 21 μM picloram on N-organic enriched medium and the use of light condition proliferated embryogenic calli. The N-organic enriched Bac medium and light condition yielded the highest number of mature somatic embryos (17 embryos per explant in 2 months). The B medium was better than BIG medium to develop somatic embryos from friable embryogenic tissues. The somatic embryogenesis method presented is potential for pineapple mass propagation and artificial seed production.