DEVELOPMENT OF A PROTOCOL FOR SOMATIC EMBRYOGENESIS OF GRAPES USING PEDUNCLE AND FRUIT SKIN

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Grapes (*Vitis vinifera* L.) are generally propagated by conventional methods such as cuttings, layering and grafting which show low multiplication rate. From recent past, tissue culture techniques have been considered as a suitable rapid propagation method for grapes. Therefore study was conducted to develop an effective protocol for somatic embryogenesis in grapes using peduncle and fruit skin with optimum sterilization conditions and media compositions. Different Clorox concentrations (15%, 20%, 25%, and 30%) and time durations (40, 30, 20 and 10 minutes) were used as treatments for sterilization of peduncles. Clorox concentration of 1%, 2.5%, 5% and 7.5% and time duration of 2, 1.5, 1 and 0.5 minutes were used for fruit skin. The treatments were laid in a Complete Randomized Design with ten replicates. The highest survival percentage ($p<0.05$) of peduncles (87%) and fruit skins (89%) were observed in 20% Clorox for 30 minutes and 2.5% Clorox for 1.5 minutes, respectively. Sterilized explants were cultured in Murashige and Skoog (MS) medium supplemented with four combinations of growth regulators (8 NAA + 1 mg/l BAP, 10 NAA + 0.5 mg/l BAP, 8 NAA + 1 mg/l BAP and 10 NAA + 0.5 mg/l BAP) as treatments to induce callus. Results revealed that the best callus induction ($p<0.05$) from peduncles was in 8 mg/l NAA + 1 mg/l BAP. No callus induction was observed in fruit skin. Embryogenesis was experimented with the growth regulator combinations of 0.25 BAP + 0.1 mg/l IAA and 0.5 BAP + 0.1 mg/l IAA with Polyethylene glycol concentrations of 25, 50 and 75 mg/l. It is concluded that, peduncles sterilized with 20% Clorox for 30 minutes followed by culturing in 8 mg/l NAA + 1 mg/l BAP was the best protocol for sterilization and callus induction whereas the best sterilization method for fruit skin was 2.5% Clorox for 1.5 minutes.

Keywords: Callus induction, Grapes, Somatic embryogenesis, Sterilization