METABOLIC CHANGES IN COCONUT EMBRYO CULTURE WITH VARIOUS ANTIOXIDANTS

Anitha Karun, Anuradha Upadhyay, Radha, E. and V.A Parthasarathy
Central Plantation Crops Research Institute, Kasaragod - 671 124, Kerala

Metabolic changes in coconut zygotic embryos were studied with respect to three alternative antioxidants, each in two levels: Activated charcoal (0.1, 0.15%); Poly Vinyl Pyrrolidone (PVP) (100, 150 mg/l) and Diethyl Dithio Carbonic Acid (DIECA) (1.5, 2.5 g/l). Embryos of 11 months old (cultivar : West Coast Tall) were inoculated in Y3 medium supplemented with the aforesaid antioxidants and biochemical analysis were carried out at the time of sub-culturing viz., 45, 90 and 120 days after inoculation. At the time of first subculture, the treatments were significantly different for reducing sugar, amino nitrogen and proteins. No significant differences were observed with regard to total sugar, phenol and OD phenols. None of the biochemical parameters were significantly different in subsequent subculture; however, their values are significantly different between the intervals. In most of the cases, the treatments showed similar pattern for changes with respect to the biochemical parameters. The per cent germination of embryos were on a par in all the treatments, but better growth and development of plants were observed in medium supplemented with activated charcoal, which is recommended in the CPCRI protocol of coconut embryo culture.

Abnormal rooting was observed in presence of DIECA, PVP and control (without any antioxidants). Isozyme pattern for peroxidase, an enzyme involved in root initiation and formation, exhibited band variation.