Production of Glycyrrhizin in Callus Cultures of Licorice

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Licorice plants, Glycyrrhiza glabra, G. uralensis, and G. inflata, were investigated for callus induction using Murashige and Skoog (MS) medium combined with auxins and cytokinins. After 4 weeks of culture, 33–100% of leaf or stem explants formed calli. Maximum of shoot induction from callus cultures was achieved by G. inflata stem explants cultured on MS medium supplemented with 1 mg/l α-naphthaleneacetic acid (NAA) and 0.5 mg/l 6-benzyladenine (BA) (67%) which also gave maximum shoot formation per explant (two shoots per explant). These results indicated that all three Glycyrrhiza species regenerated shoots from callus cultures on MS medium combined with NAA and BA or only thidiazuron (TDZ; 0.1 and 0.5 mg/l). Glycyrrhizin contents of G. uralensis calli induced using MS medium in combination with NAA and BA [(27.60 ± 8.47) µg/g DW] or TDZ alone [(36.52 ± 2.45) µg/g DW] were higher than those found in other combinations.

Key words: Glycyrrhizin, Licorice, Callus Cultures