In vitro adventitious shoot regeneration from cotyledon explant of Brassica oleracea subsp. italica and Brassica oleracea subsp. capitata using TDZ and NAA

ABSTRACT

Broccoli(Brassica oleracea subsp. italica) cv. Green Dragon King and cabbage (Brassica oleracea subsp. capitata) cv. Gianty are important vegetable crops grown in Cameron Highlands, Malaysia. The cotyledons of both cultivars were used as explant source for in vitro shoot regeneration. The objective of this research was to examine the influence of the growth regulators thidiazuron (TDZ) and -naphthaleneacetic acid (NAA) on adventitious shoot formation in these cultivars. This system of adventitious shoot regeneration from cotyledon explants could be useful as a tool for genetic transformation of the subspecies. otyledon explants of both cultivars excised from 5-day-old in vitro germinated seedlings were placed on shoot induction medium containing basal salts of Murashige and Skoog (MS) and various concentrations of TDZ and NAA. The highest percentage of cotyledon explant of broccoli cv. Green Dragon King producing shoot (76.66%) and the highest mean number of shoots produced per explant (0.9) were obtained on 0.1 mg/l TDZ with 0.1 mg/l NAA. Meanwhile, the highest percentage of cotyledon explant of cabbage cv. Gianty producing shoots (86.67%) and highest numberof shoots produced per explant (1.1) were recorded on 0.5 mg/l TDZ with 0.1 mg/l NAA. Therefore, 0.1 mg/l TDZ with 0.1 mg/l NAA and 0.5 mg/l TDZ with 0.1mg/l NAA are the recommended combinations for adventitious shoot regeneration from cotyledonary explants of broccoli cv. Dragon King and cabbage cv. Gianty respectively.

Keyword: Shoot regeneration; Cotyledon explants; TDZ; NAA; Broccoli; Cabbage