Inhibitory effect of kanamycin on in vitro culture of Lycopersicon esculentum Mill cv. Mt11.

ABSTRACT

Excised cotyledons of tomato (Lycopersicon esculentum Mill cv. MT11) were cultured on selective medium containing kanamycin at various concentrations (50, 100, 200, 300 mg/L). Significant toxic effects were observed when the cotyledon explants were grown on MS medium supplemented with 5mg/L kinetin and 100 mg/L kanamycin. The regeneration of callus was decreased as the concentration of kanamycin increased from 200 to 300 mg/L. Explants grown on MS medium supplemented with 5mg/L kinetin and 50 mg/L kanamycin showed the least toxic effects (mean survival rate 48.0% ± 0.19) compared to the rest of the concentrations tested. Even though 100 mg/L of kanamycin allows the non-transformed explants to grow on the medium, the shoot primordia would not develop further.The result suggests that 100 mg/L of kanamycin can be used effectively to differentiate between non-transformed and transformed MT11 tomato explants with a death rate of more than 82% of non-transformed explants, after 4 weeks of incubation on selection medium. Therefore, 100 mg/L kanamycin is suitable for minimal inhibition concentration for MT11 and true transformants can be selected at this concentration for the transformation system.

Keyword: Kanamycin; Lycopersicon esculentum cv. MT11; Minimal inhibitory concentrations (MIC); Tomato cotyledon explants.