

Abstract

The purpose of this research was to investigate the production of virus-free *Citrus* spp. mother plant by using tissue culture technique. The healthy young branch of *Citrus* spp. consisting of lemon, kumquat and grapefruit were collected from the Royal Agricultural Station Pang Da, Chiang Mai province. From the results of citrus greening disease and *Citrus Tristeza Virus* testing showed that both citrus greening disease and *Citrus Tristeza Virus* were not detected in all of lemon leaves samples. However, citrus greening disease were detected in 33.3% of grapefruit leaves samples and *Citrus Tristeza Virus* were detected in 66.7% of kumquat leaves samples. Seventeen shoots of lemon which as citrus greening disease-free and *Citrus Tristeza Virus*-free shoots were carefully maintained on basal MS medium containing 30 g/L sucrose. At the present, the processes of selection and collection the disease-free citrus shoots are carried out.

For surface disinfection of lemon shoot, the surface sterilization with 5% (v/v) clorox solution and 0.1% (v/v) Tween-20 on a sonicator for 10 minutes were the effective procedures exhibits low percentage of contamination and the highest percentage of explant forming shoots. In case of kumquat and grapefruit, surface disinfection on a sonicator can reduce the percentage of contamination although these are still high value. In the study of *in vitro* culture, lemon shoot bud explants could be grow on basal MS medium or basal WPM medium containing 30 g/L sucrose. However, both basal medium could not induce shoot multiplication and root induction.