EVALUATION AND CHALLANGES IN IMPLEMENTATION OF CITRUS SHOOT TIP GRAFTING (STG) TECHNOLOGY IN INDONESIA

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ABSTRACT

For the past three decades, the main problem of citrus development in Indonesia has been the Huanglongbing (HLB), Citrus Tristeza Virus (CTV) andand other virus diseases. Due to the severity, the government since 1987 has started to produce virus-free mother plants through Shoot Tip Grafting (STG) followed by indexing. This present research aims to evaluate the implementation of STG technology in Indonesia from 2008 to 2018. The activity was carried out in the tissue culture laboratory of ICSFRI by grafting 0.14-0.18 mm shoot tips as scions onto a 2-week-old JC rootstocks *in vitro*. To accelerate the growth, a one-month old micro grafted plant was re-grafted onto an 6-month old rootstock at the nursery house. Four to six months later, they were indexed using indirect ELISA and RT-PCR. The total number of micro grafting activities was 10,882, consisted of 9 citrus species (71 cultivars) with 9.8% success rate. The highest was on *C. microcarpa* (15%), whereas the lowest was on *C. grandis* Osbeck (3.4%) and *C. sinensis* (5.7%). Among 391 indexed plants, 75.2% of them were virus-free; 21.7% and 4.1% were still infected by CTV and HLB respectively, and 1% infected by both of the diseases. Although the success rate achieved is low, this technology is still an effective way to produce virus-free mother plants. From its propagation, in the period 2009-2014 at least more than 5 million virus-free plants have been produced by citrus farmers.

Keywords: Citrus, Huanglongbing, CTV, STG, Indexing

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