THE HEVEA LATEX DIAGNOSIS AS A CROP HARVEST MANAGEMENT TECHNIQUE: CONSEQUENCES OF STUDY AND IMPLEMENTATIONS ON PB 260 IN SOUTH EAST OF VIETNAM

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Abstract

Latex Diagnosis (LD) is a physiological analysis of the condition of the laticiferous system in the area of the Hevea trunk that has been tapped (Jacob et al., 1989). Latex diagnosis is based on four biochemical parameters in latex namely sucrose, thiols, inorganic phosphorus and total solid content which are in mechanisms linked to yield. In other words, they were involved in flow and latex regeneration. The analysis could provide useful information on the state of health of the laticiferous system and the rubber production capacity of tapped trees at a given time (Eschbach et al., 1983). Since 1990, latex diagnosis has been studied and large-scale applied in some estates in Viet Nam. The technique is used to offer guidelines of annual stimulation scheme and prediction of the harvesting status of estates’ plantations for detecting over exploitation. PB 260 is a high yielder and one of the most popular clones by which 50% of the total cultivated areas of Viet Nam Rubber Group occupied. A study was undertaken in clone PB 260 over nine consecutive tapping years on panel BO\textsuperscript{-1} and BO\textsuperscript{-2} to evaluate evolution of latex physiological parameters, productivity and TPD under different intensities of tapping systems. In this study, trees were tapped under d3 and d4 frequencies and separated into four treatments per each tapping frequency: a control without ethepon stimulant and three groups were treated at 4, 6 and 8 stimulation rounds per year, respectively. In stimulated treatments, up to 15% - 20% of yield loss due to TPD in the BO\textsuperscript{-2} compared to in the BO\textsuperscript{-1} panel. The percentage of TPD in the BO\textsuperscript{-2} panel was twice as high as those in the BO\textsuperscript{-1} panel. The behaviors of these latex diagnostic parameters had significant differences between the different intensities of stimulation and tapping frequencies in the BO\textsuperscript{-2} panel. Whatever the tapping frequency is, increase in stimulation intensity led to decrease in the values of these parameters. Furthermore, there was no significant difference in values of LD elements between d3 and d4 tapping frequencies. Besides that, threshold values for LD parameters of clone PB 260 were developed under both S/2 d3 and S/2 d4 tapping systems. Sampling was carried out in 48 plots from three different estates in South East of Viet Nam including
Dong Nai (16 plots), Phu Rieng (16 plots) and Dong Phu (20 plots) during a long-term period from 2009 to 2016. LD studies and setting up the standard base values of LD parameters for clone PB 260 were aimed to improve a unique crop harvest management technique for optimizing the yield in different growing regions and avoiding laticiferous system fatigue due to over-stimulation.

Keywords: rubber, latex, yield, latex diagnosis, TPD, ethepon, stimulation, tapping frequent