

Influence of Some Latex Flow Dynamics Associated with Different Latex Harvesting Systems on Latex Yield of Different Clones of Rubber (*Hevea brasiliensis* Muell. Arg.)

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Abstract

A half spiral cut tapped downward is generally used by all over the rubber growing countries to harvest latex. However, the rate of bark consumption associated with different latex harvesting systems directly influence on anatomical and physiological status of the rubber bark, hence, sustainable yield. Therefore, study planned to determine the influence of some latex flow dynamics associated with different latex harvesting systems on individual tree yield. The experiment was conducted at Kuruwita substation, Rubber Research Institute of Sri Lanka from year 2014 to 2017. The five different harvesting systems *i.e.* T1 (S/2 d2 + rain guards (RG)), T2 (S/2 d2 + 3 RT per month), T3 (S/2 d2 + 5 RT per month), T4 (S/2 d3 + 2.5% Ethephone +RG) T5 (S/2 d1), with four major rubber clones, *i.e.* RRIC 100, RRIC 102, RRIC 121 and RRIC 133 were used in this study. Split-plot design was implemented with three replicates. Phloem turgor pressure (PTP), initial flow rates (IFR), plugging index (PI), cut length and thickness of shaved bark were monitored. Latex volume and dry rubber content were measured to determine the yield per tree per tapping (YTT). In addition, the incidences of tapping panel dryness (TPD) were recorded. The PTP were significantly different among the treatments and clones indicating clonal specific responses for the different tapping systems. IFR was not significantly different among the treatments but it was vice versa among the clones tested. Low frequency harvesting system, *i.e.*, once in three days recorded lower PI and resulted in higher latex volume and YTT. The treatments subjected to the maximum number of recovery tappings and daily tapping, resulted in lower DRC, YTT and higher number of TPD trees. Significant ($p < 0.05$) interactions among the treatments and clones were evident and the clone specific response on individual tree yield under different latex harvesting systems were discussed. Intensive tapping systems and the trees tapped daily have resulted in significant yield loss while affecting the physiological stability of trees.

Keywords: Latex harvesting, Low frequency, Rubber, Stimulation, Yield

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