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Selection of Promising Genotypes from 2017 Hand Pollinated *Hevea* Progeny using Morphological, Physiological and REF Gene Expression Studies

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Abstract

This study aimed to expedite the rubber breeding cycle by identifying promising genotypes in 2017 hand-pollinated (HP) progeny of 46 new clones. Growth parameters such as girth, bark thickness, leaf area, and average yield were recorded and analyzed to identify the superior genotypes. Physiological parameters and expression of the Rubber Elongation Factor (REF) gene were also used to select the best genotypes. Four genotypes were selected namely; 2017 HP 59, 2017 HP 60, 2017 HP 63 and 2017 HP 67 with better growth characteristics. The latex physiological parameters including sucrose, inorganic phosphorus, thiol, dry rubber content and total latex volume were examined. The analysis of physiological parameters shows that the 2017 HP 59 and 2017 HP 60 genotypes have a high potential for latex production. The results revealed an upregulation in the REF gene expression of the 2017 HP 59 and 2017 HP 60 genotypes. In addition, statistical analysis was conducted to assess the correlation between each growth parameter, and cluster analysis was

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