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Identification of high yielding genotypes of rubber (*Hevea brasiliensis*) at the early stage of their breeding cycle using rubber elongation factor (*Ref*) gene and promoter

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Hevea brasiliensis (Willd. ex A. Juss.) Muell. Arg. is the main species producing natural rubber, which is an important industrial raw material. Rubber Elongation Factor (*Ref*) is a major protein, which involves in rubber biosynthesis. *Ref* protein is highly homologous to the *Ref* gene. This research was conducted to analyse the nucleotide sequences of the *Ref* gene and *Ref* promoter of seven genotypes of year 2011 in a hand pollinated progeny (HP-42, HP-231, HP-202, HP-300- high-yielding, HP-19, HP-124 and HP-297 low-yielding), along with the selected five wild accessions (RO 22/63, MT 11-76-I, MT 11-76-II, MT 11-13 and MT 10-146) of *H. brasiliensis* to develop a molecular marker to early identification of high-yielding genotypes. Already characterized, four *H. brasiliensis* clones (high-yielding and low-yielding Wickham genetic base) were used as controls for the analysis. PCR amplification of genomic DNA of all experimental materials resulted around 1250 bp fragment with *Ref* gene specific primer pair and around 700 bp fragment with both *Ref* promoter-specific primer pairs. No difference in base sequence was observed among high and low yielding clones, genotypes and wild accessions. Therefore, sequencing analysis of the *Ref* gene and *Ref* promoter showed the similar sequence in both low and high yielding clones. Sequence analysis should be carried out further for different regions of other genes of *H. brasiliensis.*

Keywords: *Hevea brasiliensis* clone, *Ref* gene, rubber elongation factor

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