

Screening of Microsatellite Markers for Early Detection of *Corynespora* Leaf Fall Disease Resistance in Rubber (*Hevea brasiliensis*) Clones

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Abstract

Corynespora leaf fall (CLF) caused by *Corynespora cassiicola*, is a serious disease affecting natural rubber industry. Withdrawing or downgrading of the position of number of clones in the clone recommendation leads to narrowing down of the *Hevea* breeding pool. Current study was carried out with the objectives of developing a microsatellite marker/s to screen new set of genotypes for CLF resistance in early stages of the evaluation process to strengthen the *Hevea* breeding pool with CLF resistance and high yielding clones. The clones RRIC 100 and PB 86 (CLF resistant), RRISL 201 and RRISL 208 (moderately susceptible) and RRIC 100, RRIC 103 (susceptible) were selected. Six clones, which have already been characterized, were taken as controls. Initially, thirty SSR primers (HB-1 to 4, HB 6 to 12, HB 14 to 22, HB 24 to 30, hmc 4 and hmct 5, and hmct1) were used for screening the polymorphism among parents. Four SSR Primers (HB 1, HB 11, HB 29, hmct 5) were selected according to polymorphism on RRIC 100 and RRIC 103. Thirty SSR primers were used in PCR amplification and used to build up the genetic distance matrix using power maker (V 3.0) computer program and tree diagram was drawn using *Tree view* computer program. Cluster analyses revealed grouping of four distinct clusters. All six control clones were grouped into two main clusters. According to the dendrogram derived, among three main clusters, cluster A consisted RRIC 52, cluster B contained RRIC 103, and cluster C comprised PB 86, RRISL 201, RRIC 100 and RRISL 208. The clone RRIC 103, a highly CLF disease susceptible product developed by RRIC 52 × PB 86 also deviated from resistant clones and showed moderate susceptibility. According to Genetic distance matrix, RRISL 208 and RRIC 52 had high distance value (0.1310) while the lowest value was observed between RRIC 100 and RRISL 208 (0.0250). Between RRIC 100 and RRIC 103, the genetic distance was 0.074 because they shared same parentage. According to the study, selected SSR primers showed potential to screen disease resistant *Hevea* clones against *Corynespora* leaf fall disease.

Keywords: *Corynespora* leaf fall disease, *Hevea brasiliensis*, Molecular markers, Resistance, SSR

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