

**RAPD IN ASSESSMENT OF GENETIC DIVERSITY OF  
HEVEA BREEDING POPULATION IN 2012**

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Rubber (*Hevea brasiliensis* Müll. Arg.) is commercially grown for natural rubber. In Sri Lanka, it covers 124,000 ha of land producing around 149,000 metric tons of rubber and supplied around 1.5 % of the global production in the year 2011. Cost of production (COP) per kilogram of rubber is Rs. 135.83. The cheapest and a convenient way to reduce COP is by increasing the productivity of natural rubber plantations which can be achieved using genetically improved planting material. Understanding the genetic diversity of *H. brasiliensis* would be important in improving high productivity clones. This research was aimed to analyze the genetic diversity of the *Hevea* breeding population in the year 2012 by RAPD. The molecular analysis was conducted on nine accessions with 30 random primers. Only seven primers (OPM 5, OPS01, OPA 18, OPN 16, OPD 02, OPY 13 and OPC 04) showed reproducibility producing 51 bands with an average of 7.28 bands per primer. Genetic distance matrix and the dendrogram were constructed using these 7 primers to assess the genetic diversity among the nine accessions by RAPDistance software V. 1.04. The nine accessions were grouped into two main clusters and greater diversity was seen in GP22/500. The higher number of sub clusters formed in this study indicated the high genetic variability. The coefficient of genetic distance ranged from 0.125 to 0.857 for all accessions; the minimum genetic distance (12.5 %) was registered between RRISL 2005 and GP22/16 and, the greatest distance (85.7 %) was between GP22/137 and GP22/500. From the practiced crosses, higher genetic variance could be obtained from the cross *H. nitida* × *H. spruceana*, GP22/500 × GP 22/16 with RRISL 2005 and, GP 22/500 with RRISL 2006 most probably due to higher genetic distance between parent plants which were 0.794, 0.777, 0.741 and 0.771, respectively. RRISL 2005 and RRISL 2006 were selected as female parents with low genetic distance (0.346) indicating close relatedness between them and they shared the same parent PB28/59. Breeding population in 2012 exhibited a higher genetic diversity and accordingly, more diverse progeny could be obtained by using them as parents in future breeding programmes.