

## PROSPECTS OF OPEN-POLLINATED PROGENIES IN *HEVEA* BREEDING

Le Mau Tuy, Le Hoang Ngoc Anh and Lai Van Lam\*

Breeding Division, Rubber Research Institute of Vietnam,  
236 Bis, Nam Ky Khoi Nghia, 3rd District, Hochiminh City, Vietnam  
\*Technical Department, Vietnam Rubber Group, Nam Ky Khoi Nghia, 3rd District,  
Hochiminh City, Vietnam

Received: 11 March 2015 Accepted: 10 May 2015

Tuy, L.M., Anh, L.H.N. and Lam, L.V. (2015). Prospects of open-pollinated progenies in *Hevea* breeding. *Rubber Science*, 28(2): 121-129.

Open-pollinated seeds are being used as supplementary genetic resources for Rubber Research Institute of Vietnam (RRIV) *Hevea* breeding program. These open-pollinated progenies over the years have shown good performance in small scale clone trials at different locations. In an attempt to enlarge genetic resources in *Hevea* breeding program, the open-pollination approach has been included in the RRIV's breeding program since 2008. High rubber yield combined with the acceptable growth of open-pollinated progenies in both early selection trials and small scale clonal trials at different locations suggested that these progenies would be potential genetic materials for *Hevea* breeding. The high genetic variance and high coefficient of heritability for studied characteristics indicated that good hybrids could be produced from high yielding and vigorous parents through open-pollination. In summary, the study establishes the prospects of open-pollinated progenies in *Hevea* breeding program.

**Keywords:** Broad-sense heritability, Hand-pollination, *Hevea brasiliensis*, Open-pollination, Selection, Variance

### INTRODUCTION

Hand-pollination (HP) is the main method to produce genetic materials for *Hevea* breeding. However, low fruit set and subtle manipulation in the technique have become major limitations on genetic recombination. The problem for rubber breeders is how to take advantage of the large number of germplasm for *Hevea* breeding program. Low fruit set is a major limitation to genetic recombination in rubber breeding. (Tan, 1987; Clément Demange *et al.*, 2007; Mydin *et al.*, 2011). By

contrast, open-pollinated progenies are diverse genetic resources because of varying recombination process due to outcrossing in *Hevea*. According to previous studies on biometrical genetics of *Hevea* (De Costa *et al.*, 2000; Simmonds, 1986), this population had healthy growth and good yield due to the predominantly additive genetic control of growth vigor and yield. General combining ability (GCA) for these characteristics was recorded high (Mydin *et al.*, 2010).

Since 1998, open-pollinated seeds have been initially collected as supplementary genetic resources for the RRIV's *Hevea*