

GENETIC DIVERSITY IN IRRDB COLLECTION OF BRAZILIAN WILD *HEVEA* GERMPLASM

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Received: 09 November 2022 Accepted: 05 December 2022

Rao, G.P. (2022). Genetic diversity in IRRDB collection of Brazilian wild *Hevea* germplasm. *Rubber Science*, 35(2): 159-167.

In order to augment the narrow genetic base of cultivated rubber clones, IRRDB has made a collection of wild *Hevea* germplasm and distributed to its member countries after germplasm exploration in Brazilian rain forests during 1980s. Fifty-five wild accessions from three provenances of Brazil viz. Acre (AC), Rondonia (RO) and Mato Grosso (MT), were evaluated along with RRII 105 and RRII 600 as nursery trial in the traditional rubber growing region of Kerala state, India. The genotypes exhibited highly significant clonal differences for all the growth and yield traits. The highest mean values noted for the traits at 6th year after planting were, girth of plant - 35.60 cm (RO 5432); annual girth increment (cm yr⁻¹) over three years - 5.47 cm (RO 5432); bark thickness - 5.30 mm (MT 4771); crotch height - 5.14 m (MT 4690); single leaf area - 150.40 cm² (RO 5365) and yield - 11.19 g t⁻¹ t⁻¹ (RO 5018). The genotypes were grouped into six clusters, indicating considerable genetic diversity in the population. Clusters I, VI, II and III had highly potential genotypes which can be used for the development of high yielding clones and broadening the genetic base of the cultivated rubber.

Keywords: Genetic diversity, Growth vigour, *Hevea brasiliensis*, Wild germplasm

INTRODUCTION

The Para rubber tree (*Hevea brasiliensis*) is commercially cultivated in South East Asian countries for its highly economic and quality product viz. natural rubber (NR). The tree belongs to the family *Euphorbiaceae* and indigenous to the tropical rain forests of Central and South America. Among the ten species, *H. brasiliensis* is cultivated as large scale plantations in several Southeast Asian countries. In 1876, Henry Wickham collected few seedlings from a minuscule of the genetic range of *Hevea brasiliensis* in Boim, near the Tapajos River in Brazil (Wycherley, 1968). The entire developments in rubber of

South East Asian countries came from these few seedlings and thus the resultant clones developed from these seedlings are popularly known as "Wickham clones". In *Hevea* cultivated regions, the genetic advance gained in the early breeding phases seems to have slowed down in the later phases of breeding (Simmonds, 1989) for which the narrow genetic base of Wickham clones was considered to be the chief factor.

To protect the fast depleting *Hevea* genetic resources from their native region in Brazil (Wycherley, 1968) and also to broaden the genetic base of cultivated rubber, a large collection of wild *Hevea* germplasm was