

# ADAPTABILITY OF *HEVEA* CLONES AND IRRDB COLLECTION OF WILD GERMPLASM TO THE DROUGHT-PRONE CHHATTISGARH REGION OF INDIA

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Natural rubber, with its center of origin in the Amazon rain forests of Brazil, is a strategic industrial crop cultivated mainly in the Southeast Asian countries. To broaden the narrow genetic base of cultivated rubber in this region, a huge collection of wild germplasm was made from three states in Brazil viz. Acre (AC), Rondonia (RO) and Mato Grosso (MT) by the IRRDB in 1981, and distributed to member countries including India. Around 4500 accessions are now being conserved in nurseries in India and are under different stages of evaluation. In the present study, a set of thirty potential wild accessions and six modern clones viz. RR1105, RR1118, RR11208, PB 260, GT 1 and GI 1 were evaluated in detail in a replicated trial planted in 1996 in the non-traditional rubber growing region of Chhattisgarh state, India. The design adopted was simple lattice with two replications at the standard spacing of 4.9 x 4.9 m and plot size of 10. The trial was located on plain land with similar soil nutrient status at Regional Research Station at Sukma, Chhattisgarh state, India. Girth was recorded annually from the fourth year onwards. Performance of these genotypes in terms of girth (9<sup>th</sup> year to 13<sup>th</sup> year), girth increment (GI) per year over five years, crotch height, bole volume, number of laticifer rows and yield (peak, summer, average of two seasons) was assessed. Highly significant variability was observed for all these traits. Yield was positively correlated with other growth traits. Based on this study, the wild accessions RO 5363 and RO 5430 were found to be superior for yield and growth in the drought stress region, which could be of use in future crop improvement programmes, particularly for stress-prone regions.

**Keywords:** Correlations, Crop improvement, Drought stress, *Hevea brasiliensis*, Wild germplasm

## INTRODUCTION

The cultivated clones of natural rubber (*Hevea brasiliensis*) have been evolved within the 'Wickham' genetic group, which represents a very narrow gene pool since it was collected from a limited area of the Amazon region (Schultes, 1977). The

intensive directional selection over the past several decades for yield alone has further narrowed the genetic base (Wycherly, 1969), and has resulted in a slow-down in genetic advance in further breeding phases (Tan, 1981; Seguin *et al.*, 1995). Considering these facts, and that the forest genetic resources