

## MORPHOLOGICAL STUDIES ON SEED COAT OF CERTAIN CLONES OF *HEVEA BRASILIENSIS* MUELL. ARG. USING SEM

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Sebastian, T., Saraswathyamma, C.K. and Thomas, V. (2002). Morphological studies on seed coat of certain clones of *Hevea brasiliensis* Muell. Arg. using SEM. *Indian Journal of Natural Rubber Research*, 15(1): 40-43.

Identification of *Hevea* clones is tedious but very essential for research and for cultivation. Studies on seed coat sculpturing using scanning electron microscope (SEM) have revealed that seed surface pattern is characteristic and constant for a given species or a group of species. An attempt was made to identify some popular clones by seed coat sculpturing under SEM. The seed surface of clone RR11 105 is areolate and areoles are granulated and well differentiated. Areoles have various sizes and shapes in Tjir 1. The seed surface of GI 1 is verrucated with cloudy pattern whereas in PB 260 it is smooth psilate. In PB 312, the seed surface is rough with granules but in KRS 128 it is faintly reticulate with cloudy pattern. SEM studies have elucidated significant variation among clones for seed coat pattern. Hence seed coat micro morphology can be used as a vital parameter in the identification of *Hevea* clones.

Key words: *Hevea brasiliensis*, *Hevea* seed, Seed coat, Seed morphology

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### INTRODUCTION

*Hevea brasiliensis* Muell. Arg., the Para rubber tree belonging to the family Euphorbiaceae, is the major source of natural rubber. Important methods of propagation of this tree crop are through seed and budgrafting. In *Hevea*, seed is one of the distinctive features of the spermatophyte and the most important source of genetic variability. *Hevea* seed is recalcitrant. Seeds are mainly used for raising stock seedlings for budgrafting, while polyclonal seeds are used for planting in areas marginally suited for cultivation. Seed identification is useful in seed testing, crop improvement and taxonomy. The mature seed has a fairly thick testa with smooth surface and characteristic mottling. Since the seed coat develops from the tissues of the female parent and is independent of the male parent, seeds from a particular mother tree are similar in appearance. Variations in seed size, colour and surface features are important for identification of clones (Polhamus, 1962). Clonal variations in size, shape and mottling of seeds were already reported

(Saraswathyamma *et al.*, 1981; 1988; Mercykutty *et al.*, 1991; Thomas *et al.*, 1996). However, seed surface features, including primary ornamentation of rubber seeds have not so far been reported. This communication deals with the ultra microscopic studies on seed coat of different clones.

### MATERIALS AND METHODS

Morphological and scanning electron microscopic studies were made on seeds from fully mature fruits representing six clones viz., RR11 105, Tjir 1, GI 1, PB 260, PB 312 and KRS 128 (Table 1), which were collected from randomly selected trees in the field. Thirty seeds representing each clone were used for morphological observations. Length, breadth and width were measured

Table 1. Details of clones selected for the study

Clone	Parentage	Country of origin
RR11 105	Tjir 1 x GI 1	India
Tjir 1	Primary clone	Indonesia
GI 1	Primary clone	Indonesia
PB 260	PB 5/51 x PB 49	Malaysia
PB 312	RRIM 600 x PB 235	Malaysia
KRS 128	PB 5/63 x KRS 13	Thailand