

ESTIMATES OF VARIABILITY AND ASSOCIATIONS OF CHARACTERS OF ROOT STOCK SEEDS AND RESULTANT SEEDLINGS AND COMPARISON OF SEED TYPES IN RUBBER

D. Premakumari, K.M. Mary, T.A. Soman and M.A. Nazeer

Premakumari, D., Mary, K.M., Soman, T.A. and Nazeer, M.A. (2001). Estimates of variability and associations of characters of root stock seeds and resultant seedlings and comparison of seed types in rubber. *Indian Journal of Natural Rubber Research*, 14(2) : 165 - 169.

The use of assorted seeds to develop root stock material for budgrafting in rubber produces highly heterogeneous stock seedlings, which can interact with the scion to generate variability at different levels. This study was conducted to estimate the variability and associations of certain quantitative traits of root stock seeds, seed germination and juvenile growth attributes of resultant seedlings. The assorted seeds have been compared with three different monoclonal seed types for these characters. Low magnitude of variability, within group, was recorded for all the characters under study in monoclonal seeds, while though assorted seeds showed comparatively higher value. The seed characters and germination percentage recorded high heritability, in the broad sense, while for the juvenile growth attributes it was low. The seed types showed significant differences for the various traits studied. Germination percentage was the most reliable criterion for seed viability and seedling growth. Root / shoot ratio was more influenced by the shoot biomass than the root biomass. The results of this study confirm the validity of assorted seeds as the best material for raising stock seedlings. For further improvement of the quality of root stock seeds collected from Kanyakumari region, it is suggested to avoid mixing with the seeds of the clone PB 24/59.

Key words : Budding, Germination, *Hevea brasiliensis*, Root stock, Rubber, Seed, Variability.

D. Premakumari (for correspondence), M.A. Nazeer, Rubber Research Institute of India, Kottayam - 686 009, Kerala, India (Email : rri@vsnl.com); K.M. Mary, Department of Botany, St. Mary's College, Manarcadu, Kottayam - 686 019; T.A. Soman, Hevea Breeding Sub-Station, RRII, Thadikarankonam, Tamil Nadu - 629 851, India.

INTRODUCTION

The para rubber tree (*Hevea brasiliensis*) is propagated by budgrafting. The accepted nursery practice to develop root stock material is the use of assorted seeds, considering the convenience in handling and their easy availability as commercial seeds. This results in production of highly heterogeneous stock seedlings. Some variations of metric characters among the trees of clonal populations (Buttery, 1961; Alik, 1980; Chandrasekhar *et al.*, 1997) have been reported. The genetic basis of such variations has not been investigated since the scion part of all trees of a clone is genetically uniform. There are some reports to show

intraclonal variations in *Hevea* at enzyme level (Krishnakumar *et al.*, 1992; Sobhana *et al.*, 2000). Such variations can be the expressions of stock-scion interaction and hence the genetic variability of root stock sources, which can interact with the scion to generate variability at different levels, gains importance. As a preparatory part of a detailed investigation on the intraclonal variations and associations in RRII 105, the most popular clone in India, this study was conducted to estimate the variability and associations of certain quantitative traits of root stock seeds, seed germination and juvenile growth attributes of resultant seedlings. Such information is very useful for the refinement of nursery practices also.