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MORPHOLOGY OF *HEVEA* POLLEN

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Light and scanning electron microscopic (SEM) studies on pollen morphology of three *Hevea* species namely, *H. brasiliensis* (Willd. ex Adr. de Juss.) Muell. Arg., *H. spruceana* Muell. Arg. and of *H. benthamiana* Muell. Arg. were carried out. The pollen grains of *Hevea* are 3-zonocolporate and there are significant differences among the species with regard to size, exine thickness and pore diameter. SEM studies offer new useful information on the taxonomy of *Hevea*.

Key words—*Hevea brasiliensis*, *H. benthamiana*, *H. spruceana*, Pollen grains, Zonocolporate, Pollen morphology

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INTRODUCTION

Pollen grains of angiosperms represent a highly reduced male gametophyte with astounding morphological features embodied in their exine. Palynological studies in agricultural crops are of immense value in crop improvement and its application in breeding was stressed by several workers (Erdtman, 1952; Nair, 1961, 1970 and Khoshoo, 1979). In *Hevea*, information pertaining to morphology of pollen is very meagre (Markose and Nair, 1970). However, there are reports regarding germination studies in *Hevea* pollen (Ramaer, 1932; Dijkman, 1951; Majumder, 1964; Attanayake and Dharmaratna, 1984; Saraswathy Amma and Panikkar, 1989).

Hevea is monoecious with flowers arranged in panicles. The genus consists of ten species, among which *Hevea brasiliensis* alone is commercially exploited for rubber. *Hevea benthamiana* and *Hevea spruceana* are wild and are of limited or little commercial value. The present study relates to the light microscopic and scanning electron microscopic observations of pollen from these three species, with the idea of laying down standards for using pollen morphology in the taxonomy of *Hevea*.

MATERIALS AND METHODS

Pollen material for the present study relates to three species of *Hevea*, namely *H. brasiliensis* (Willd. ex Adr. de Juss.)Muell. Arg., *H. spruceana* Muell. Arg. and *H. benthamiana* Muell. Arg. Fully matured male flowers, just prior to anthesis, were collected and preserved in 70 per cent alcohol. The methods and terminology used for the morphological studies of pollen grains were those followed by Nair (1970). Acetolysis was done by the standard procedure (Erdtman, 1952). Pollen grains were examined and measurements of equatorial diameter, polar diameter, exine thickness and pore diameter were taken. The measurements of pollen grains were taken at a magnification of 400x by means of an ocular micrometer using a light microscope (LM).