

The causal organisms was isolated from diseased fruit of guava and identified as *Gliocladium roseum* Bainier. The fungus grew well on potato dextrose agar and host pulp agar media. Some healthy fruits of guava were inoculated with the fungus by inoculum disc after pricking the fruit surface and also by spraying. After seven days, the fruits pricked showed disease symptoms. From the inoculated fruit the same fungus was re-isolated.

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upto 7 and are roughly flask shaped. The conidia are hyaline, broadly elliptical and are found in short chains. The larvae inoculated by topical application of spores, exhibited loss of appetite, general sluggishness and decreased irritability within 48 hours. Towards the later stages, diseased larvae appeared lighter in colour than the healthy ones. Death occurred in 3 to 4 days. Under moist conditions whitish external growth of the fungus appeared 24 hours after death. The fungus was found to be highly pathogenic causing over 95 per cent mortality in the inoculated larvae.

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**PAECILOMYCES FARINOSUS (DICKSON ex FRIES) BROWN AND SMITH A NEW FUNGAL PARASITE OF THE MANGO LEAF WEBBER, *ORTHAGA EXVINACEA* H.**

DURING February–March 1976, several larvae of the mango leaf webber, *Orthaga exvinacea* (Noctuidae : Lepidoptera) killed by *Paecilomyces farinosus* (Deuteromycetes : Moniliaceae) were collected from the Agricultural College Farm, Vellayani, Kerala. In India *P. farinosus* has been reported on the whitefly, *Bemisia tabaci*<sup>1</sup>. There is no previous record of its occurrence on *O. exvinacea*.

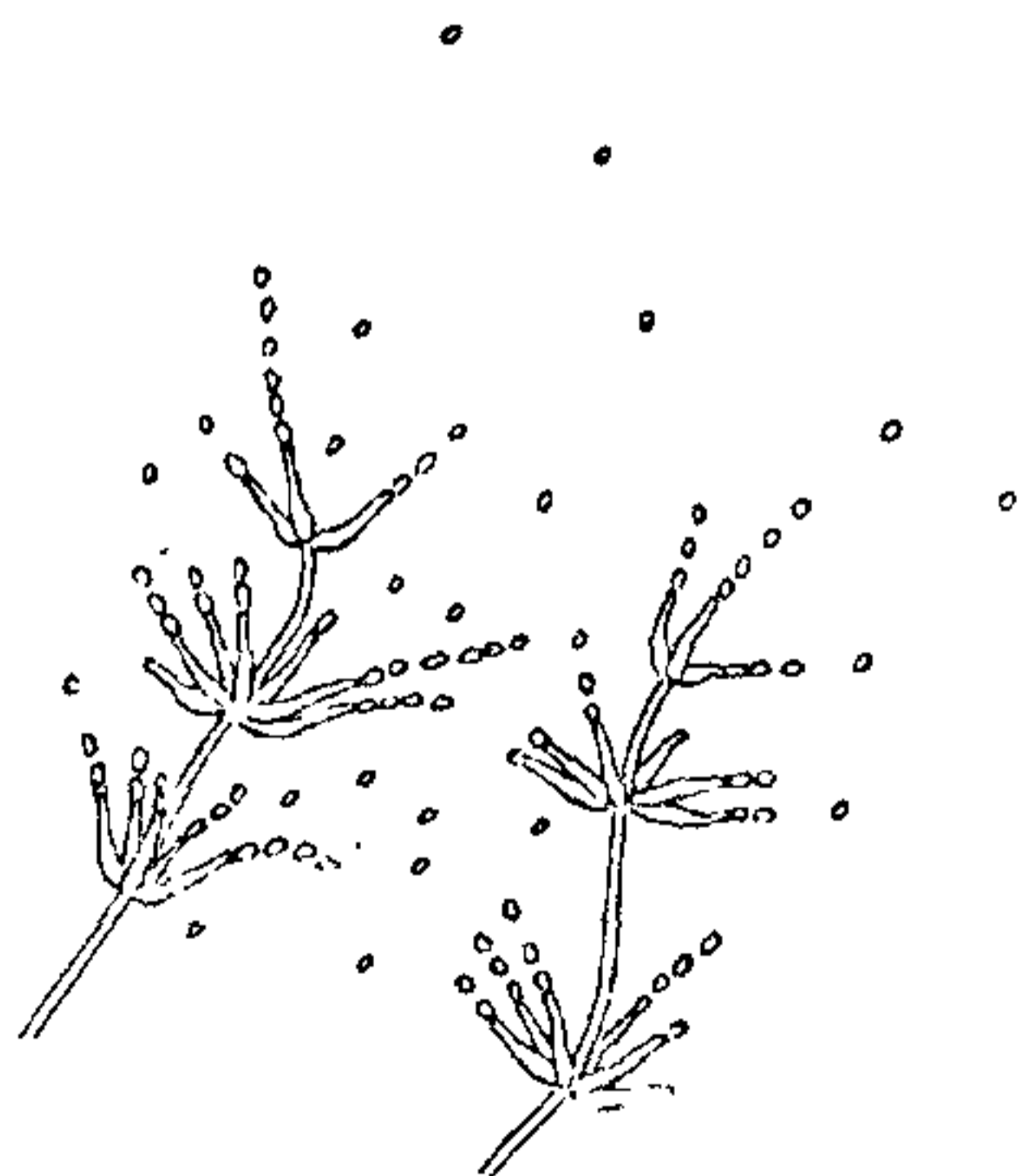


FIG. 1. *Paecilomyces farinosus*.

The fungal colony on potato-dextrose-agar medium has a tough matted basal felt and a loose hairy hyphal growth. The phialides (Fig. 1) are in whorls

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**OBSERVATIONS ON THE POLLEN GRAINS OF *GYROCARPUS AMERICANUS* JACQ.**

*Gyrocarpus* (Hernandiaceae ; Cronquist)<sup>2</sup> is a tropical genus represented in India by the species *G. americanus* Jacq. characterised by polygamous inflorescence, with numerous male, and a few female and bisexual flowers. The family has been variously treated by different taxonomists<sup>1</sup>. Pax<sup>3</sup> and also Cronquist<sup>2</sup> placed the family under Magnoliales, while Hutchinson<sup>5</sup> placed it in Laurales, which are currently considered to constitute the primitive Magnolian angiosperms.

In *Gyrocarpus jacquini* (*G. americanus* Jacq.) from Australia, Erdtman<sup>4</sup> observed non aperturate and spinulate pollen grains, with an average diameter of 45  $\mu$ . Walker<sup>9</sup> made a mention of the pollen morphology of the family. Hardly any information is available on the different aspects of the biology of the taxa of Hernandiaceae as a whole.

The material for the present study was collected from the deep forest at "MEKE DHATU" near Kanakapura (Bangalore District) of Karnataka State, India, during February 1976. The material was preserved in glacial acetic acid and pollen preparations were made by the alcohol method of Nair<sup>8</sup> in which the protoplasm is not dissolved as compared with the acetolysis method.

The pollen grains are inaperturate and spinulate (very small), and are provided with very thin exine and sparse spinules on the exine surface (Fig. 1). The most notable feature in the present material is the large range of size variations from 30–64  $\mu$  (size classes : 30  $\mu$  = 4.4%, 34  $\mu$  = 14.8%, 40  $\mu$  = 14.4%, 45  $\mu$  = 19%, 49  $\mu$  = 13%, 53  $\mu$  = 8%, 56  $\mu$  = 6.6%, 60  $\mu$  = 3.2%, 64  $\mu$  = 2%).

based on measurements of a total number of 258 pollen grains (Fig. 2).

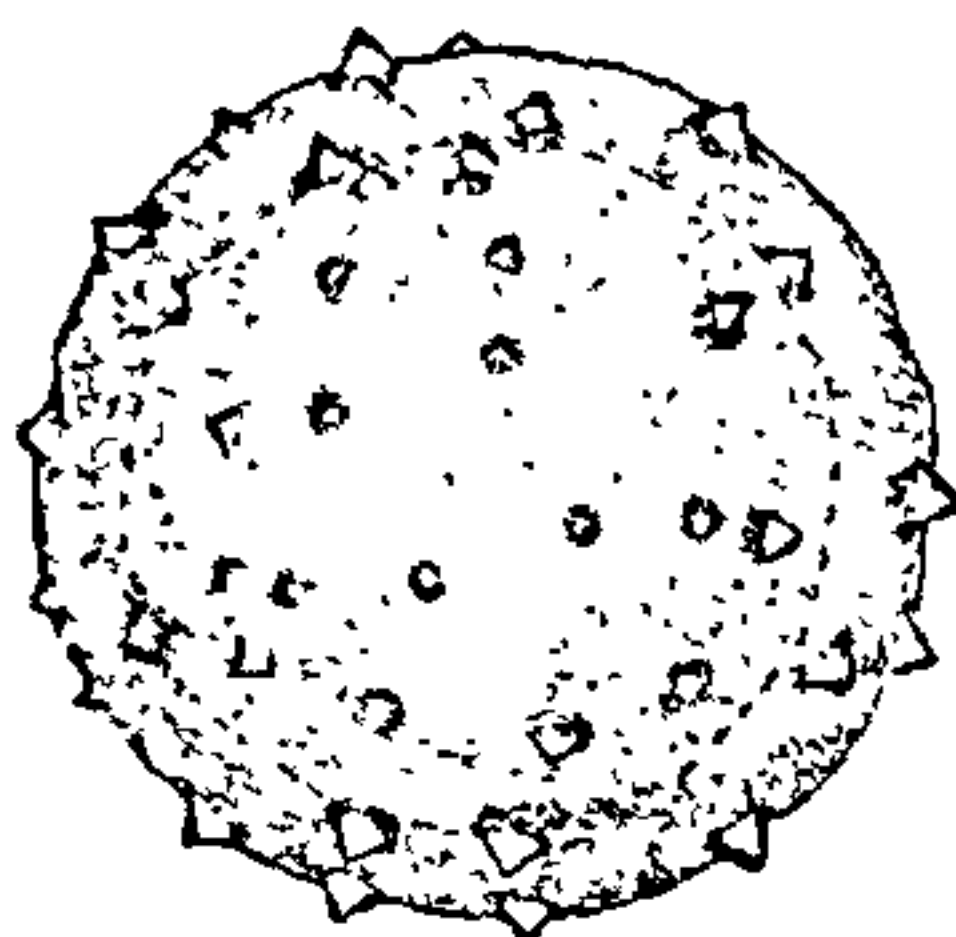


FIG. 1. Palynogram of *G. americanus* Jacq. showing the inaperturate and spinulate characteristics,  $\times 400$ .

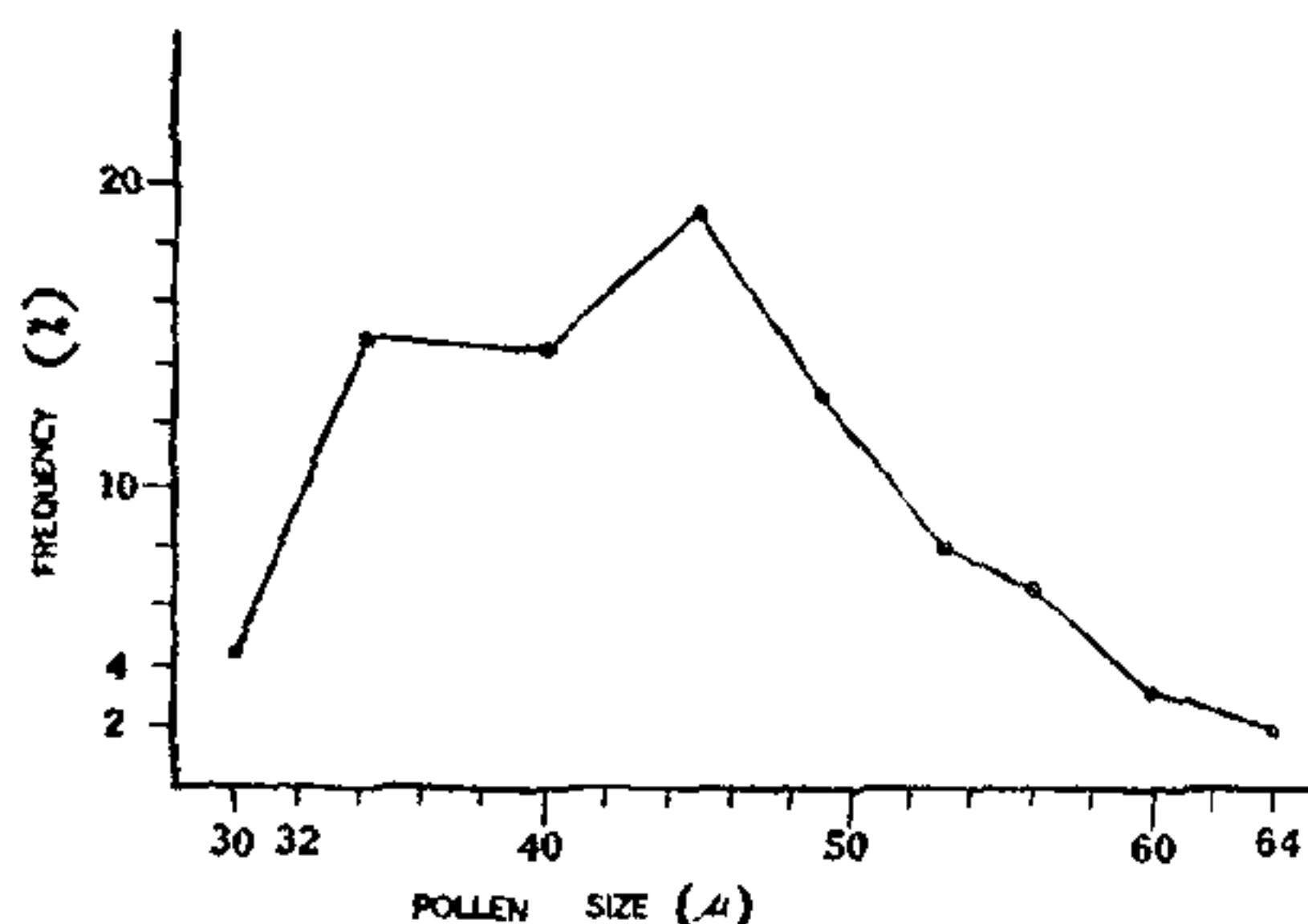


FIG. 2. Graph showing frequency of pollen size class in *G. americanus* Jacq.

The inaperturate pollen is indicative of the affinity of *Gyrocarpus* (Gyrocarpoideae) with Lauraceae. Erdtman<sup>4</sup> indicated that the pollen grains in Gyrocarpoideae are more or less similar to those in Lauraceae whereas the grains in Hernandioidae are slightly similar to those in *Peumus* (Monimiaceae). Guillaumin (Erdtman<sup>4</sup>) and Takhtajan<sup>1</sup> raised the Gyrocarpoideae of Engler and Prantl to the level of a family, Gyrocarpaceae. The palynological findings of Erdtman<sup>4</sup> and Walker<sup>9</sup> favour the separation of these two sub-families. However, a final solution to this problem may be provided by embryological and other data of which hardly any knowledge is available<sup>3</sup>.

The large range of size variations and the sparse distribution of spines are unique in the present material as compared with the observations made by Erdtman<sup>4</sup> in *G. jacquini*. Such variations in size and other morphological characters of pollen are considered to be an evidence of mutational changes in plants and therefore it may be presumed that the individual from which the present material has been procured (or the whole colony of them)

constitute a bioform. The material having been collected from the deep forest, there is hardly any possibility of any biotic factor involved in inducing the genetic change. Therefore, it is possible that some unknown ecological or geographical factors have caused the change as reflected in pollen morphology.

The Magnoliidae of Cronquist, as a whole are characterized by the trimorphous apertural condition, there being trichotomolopate, monocolpate and inaperturate grains (Nair)<sup>7</sup>. In the scheme of pollen evolution, it has been generally considered that inaperturate condition is a specialized feature, although Walker<sup>9</sup> and Muller<sup>6</sup> considered it to be a sign of a primitiveness as far as angiosperms are concerned. However, the flower structure of the Laurales may be deemed to suggest higher evolution within the Magnoliidae (of Cronquist)<sup>2</sup> because of their apetalous condition. The modern thinking on angiosperm phylogeny is that the petaloid form like that of *Magnolia* is more primitive and the apetalous ones advanced.

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