

highly sensitive to the presence of the fungal antigen. Since an axenic culture of the fungus was used for the experiment, the immune response was caused due to the fungus alone, and not due to any other component. The specificity of the reaction is evident from these observations.

Results were obtained on the basis of three different sets of experiments.

The results clearly showed that the antibody titre for the Dehradun and Hirehalli cultures were 1:12800 and 1:6400 respectively. These are fairly high values and antisera of high titre can therefore be obtained in a short period, hence, the methodology would be of immense benefit in raising antisera for early detection of the disease perhaps using the fluorescent antibody technique.

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DISPERSION OF MALE AND FEMALE PLANTS OF DIOECIOUS EUPHORBIACEAE ALONG A MOISTURE GRADIENT

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THE spatial distribution of male and female plants of dioecious species within a population is likely to influence the foraging behaviour of pollinators and consequently the level of pollination¹. Spatial segregation of male and female plants due to ecological differentiation was observed in the case of *Chamaelirium luteum* (L.) Gray². Moreover, studies of sex ratios in tropical trees contribute significantly towards an understanding of deviant sex ratios in flowering plants³. The question is whether staminate and pistillate plants show any segregation or not along an ecological gradient since a particular sex is capable of exploiting that ecological niche better than its counterpart. Testing by either the nearest-neighbour method or by examining the distribution of males and females along with an environmental gradient would seem to give an answer¹. The latter method is employed here and the gradient considered is soil moisture.

Three dioecious species and longlived perennials of Euphorbiaceae occurring on the banks of streams were chosen from the wet evergreen forests of Idukki, Kerala. The species studied were *Agrostistachys meeboldii* Pax & Hoffm., *Antidesma menasu* (Tul.) Miq. ex Muell.-Arg. and *Aporosa acuminata* Thw. in 'islands' of natural forests amongst grasslands, savannas and partially or highly disturbed moist deciduous forests. The areas examined were confined to the forests associated with the river Meenmutti and its adjacent streams. The study was conducted when these species were in flower and the plants of both sexes were easily identifiable.

It was found that while the number of plants of *Antidesma menasu* gradually decreased from the river banks spreading upto 100 m, the trend was reverse and the plants dispersed only upto 30 m in the case of *Aporosa acuminata*. Neither of these trends was exhibited by *Agrostistachys meeboldii*. This may be due to its narrow range of extension from the river edge (it was found occurring either in the islands of the streams or confined to their banks, i.e. upto 6 m only—figure 1). However, in all the three cases, no segregation of male and female plants was evident along a moisture gradient (figure 1). In other words, the probability of a

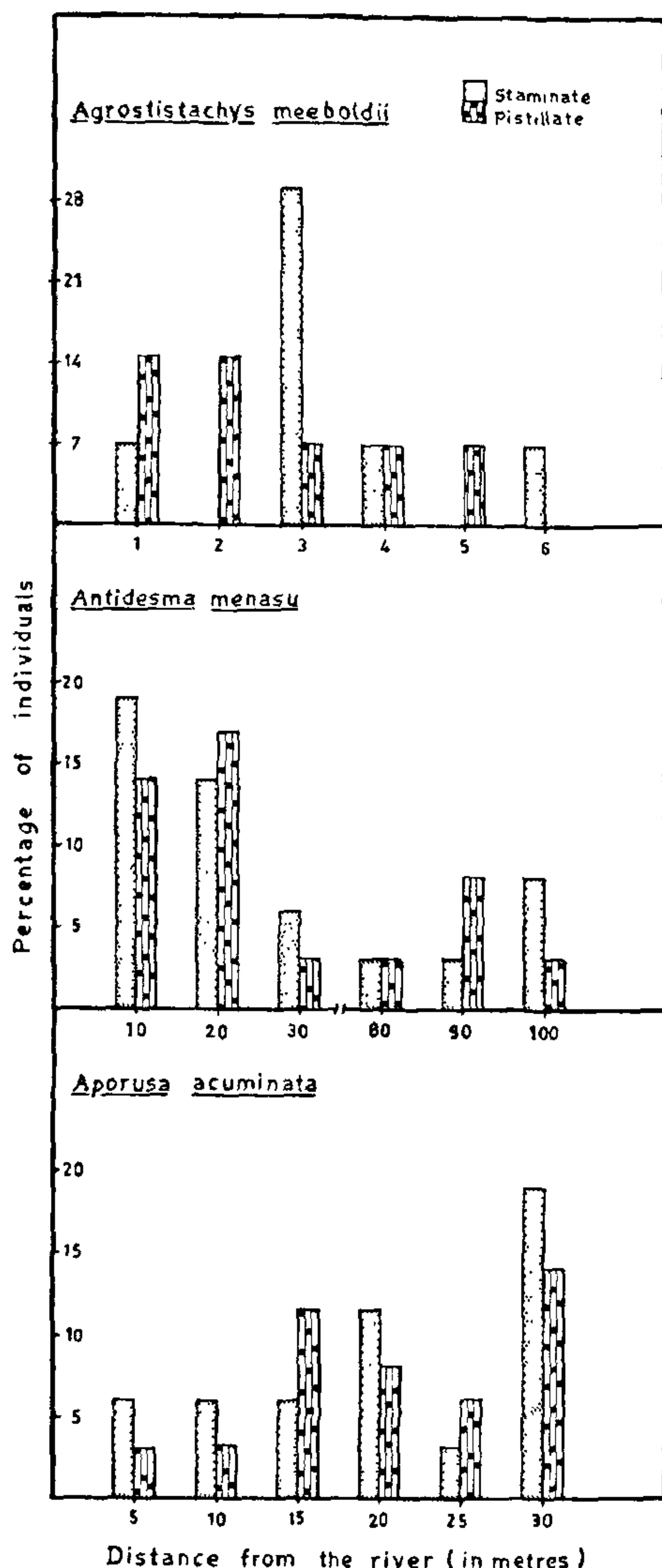


Figure 1. Distribution of staminate and pistillate plants of three Dioecious euphorbiaceae along a moisture gradient.

staminate plant occurring at a distance from the river is the same as that for a female plant. This is in agreement with the studies on *Guarea luxii* DC.

(Meliaceae), *Randia spinosa* Jacq. (Rubiaceae) and *Zanthoxylum setulosum* P. Wilson (Rutaceae) in Costa Rica by Bawa and Opler¹.

To summarize: (i) there is no segregation of sexes along an ecological gradient (soil moisture) in the species studied; (ii) the riparian nature of the species studied has been confirmed; (iii) the extent and intensity of distribution of the plants away from the river varied in the three species/genera studied; and (iv) it is clear that the dispersion of sexes in a dioecious species is random in an undisturbed natural plant community—a phenomenon which appears to be advantageous and of adaptive significance to the dioecious species.

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CHEMOTAXONOMY OF SOME RUBIACEAE

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THE present account on the chemotaxonomy of some Rubiaceae is an attempt to identify the species on the basis of chemical characters and to estimate the kinship among them.

Standard phytochemical tests have been carried out on ten taxa viz *Gardenia gummifera* Linn., *G. jasminoides* Ellis., *G. latifolia* Ait., *Mussaenda erythrophylla* Schum., & Jhonn., *M. frondosa* Linn., *M. luteola* Delile, *Nauclea cadamba* Roxb., *N. orientalis* Linn., *N. parviflora* Willd. and *Randia dumetorum* Lamk., with the fresh material and as well as 80% alcoholic extracts of the shade-dried material to detect the presence of various chemical constituents.