

A STATISTICAL ANALYSIS OF THE VEGETATIVE CHARACTERS OF SRI LANKAN *ASPARAGUS* (F. *ASPARAGACEAE*)

C.P. RAJAPAKSE AND D.M.D. YAKANDAWALA

Department of Botany, Faculty of Science, University of Peradeniya

Asparagus is an important genus of medicinal plants used in ayurvedic medicine in Sri Lanka. The circumscriptions in different taxonomic treatments of the taxa differ with splitting and lumping of species. Four species are recognised, *A. racemosus*, *A. falcatus*, *A. gonocladus* and *A. zeylanicus* by upgrading the endemic *A. racemosus* var. *zeylanicus* to species status. The latest revision in the Flora recognises only three species where the endemic *A. zeylanicus* is reduced under *A. racemosus*. Field experience suggests the occurrence of several morphological variants with very distinct character combinations that are not listed under the presently recognised species descriptions. Because of these discrepancies, the present study was undertaken to elucidate the number of different *Asparagus* species that occur in Sri Lanka.

Live specimens were collected from all recorded locations and several other locations covering all climatic zones. Plants were studied in detail and characters showing variations were identified. These characters were coded into a data matrix and were subjected to cluster analysis.

A total of 50 characters was recorded; but as floral data were not complete for a few specimens, only 23 vegetative characters were included in the analysis. The resulted dendrogram identified five major clusters. Each of these identified clusters was evaluated on the basis of the character combinations of the individuals included within the cluster.

Two of these clusters unequivocally agreed with the character combinations of *A. gonocladus* and *A. falcatus*. The other three clusters together corresponded to the character combination described during the latest revision under *A. racemosus*. However, the clear separation of this large cluster into three sub clusters at an acceptable distance indicates the heterogenic nature of the species. Each of these clusters could be supported by character combinations which are unique to each of them; *Asparagus* with shorter, trigonous, and sickle shaped cladodes of higher elevation; *Asparagus* with shorter, trigonous, and sickle-shaped cladodes of lower elevation and *Asparagus* with longer, trigonous, straight cladodes of lower elevation.

The results of the cluster analysis using vegetative characters unambiguously identify the species *A. gonocladus* and *A. falcatus*. Species of *Asparagus* described under *A. racemosus* is an assemblage of different species of *Asparagus*. The group of *Asparagus* that occur in the higher elevations with shorter, trigonous, sickle-shaped cladodes is possibly the group that was recognized as *A. zeylanicus* (Baker) Hook. f. in 1892.

Financial assistance provided by the University Research Grant No.RG/2002/64/S is acknowledged.