

PLANT TAXONOMY

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ABSTRACTS

A Numerical Taxonomic Study of Some North American Species of *Pinus*. CHAD P. MCHUGH, Department of Biology, University of Notre Dame, Notre Dame, Indiana 46556.—A study of the relationships among 36 species of North American pines was carried out using the methods of numerical taxonomy. The study was based on 39 morphological, anatomical, and ecological characters which were selected from five treatises on the Coniferae. A similarity coefficient was generated for each possible pair of species to give a numerical estimate of species relationships. Graphic summaries included a phenogram and a principal components analysis to show clustering of the pines into groups of high similarity. They also revealed the relationships among these groups. Results agreed with traditional classifications, dividing the genus into the hard or yellow pines (*Diploxylon*) and the soft or white pines (*Haploxylon*). There was a relatively high similarity between the five needle pines and the Pinyons which had been considered separate groups. In particular, the close relationship and the similarity of ecological and habit characteristics of *Pinus albicaulis* and *P. flexilis* to the Pinyons suggest that they may be intermediate forms between the Pinyons and the other five needle pines. The study gave ideas of similarity relationships among species and among groups of species which would be difficult to ascertain with traditional taxonomic methods.

A spontaneous hybrid of *Capsicum annuum* var. *minimum* and *Capsicum frutescens*. CHARLES B. HEISER, Jr., Department of Botany, Indiana University, Bloomington, Indiana 47401.—On a visit to El Salto, Escuintla, Guatemala, in 1970 I found *Capsicum frutescens* L. to be fairly abundant as a weed in the flower gardens of Sr. R. Dorion. About 200 meters away *C. annuum* var. *minimum* (Miller) Heiser was a common weed in the yard of the Organization of Tropical Studies house. Inspection revealed that the plants of *C. frutescens* were rather uniform; the same was true of *C. annuum* var. *minimum* except for two of the 20 plants examined. One of these appeared to be fairly typical of *C. annuum* var. *minimum* except for the calyx which was somewhat like that of *C. frutescens*; the other (7105) was much taller than the other plants with more elongate fruit approaching that of *C. frutescens* in shape. It bore very few fruits and these fruits produced far fewer seeds than was normal for either species. The plant had highly reduced pollen stainability (14%). From the 10 mature fruit

collected 21 seeds were harvested, and these were planted the following year at Indiana University. Twenty seeds germinated, and two of the seedlings died. The remaining 18 plants flowered and showed plant to plant variation in characters that separate the two species, such as number of peduncles; corolla color, size and shape; shape and size of the fruit; as well as in fertility. Pollen stainability ranged from 4 to 79% with a mean of 44%. Eight plants produced an abundance of fruit, seven plants produced very few fruits, and three failed to produce fruit. Moreover, it was found that the plants showed various degrees of abnormal leaves or a "virus-like syndrome," similar to the condition described by Pickersgill (*Evolution* 25:687, 1971.) in F_1 hybrids involving other species. The morphological similarity of 7105 to artificial hybrids of *C. annuum* var. *minimum* x *C. frutescens* and the morphological variability and sterility found in its progeny (either selfs or backcrosses) strongly indicate that the plant is a hybrid. Possibly the other deviant plant of *C. annuum* var. *minimum* in the original population is a hybrid derivative. Specimens of 7105 and its progeny are deposited in the herbarium of Indiana University. Only one natural hybrid was reported previously between *C. annuum* var. *minimum* and *C. frutescens* (Heiser, *Ciencia y Naturaleza* 2:53, 1964.) Perhaps hybrids between the two are not uncommon as they may often grow together as weeds. Some of the variation in the two species, particularly in fruit shape, may result from introgression, but it is likely that the self-pollinating habit as well as sterility limits the amount of gene exchange between the two.