

PLANT TAXONOMY

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ABSTRACTS

The Role of Paper Chromatography in Taxonomy. C. W. HAGEN, JR., Indiana University, Bloomington.—Paper chromatography will become an important adjunct to the taxonomist's armamentarium because it offers a means of examining far more attributes from a single specimen than can conveniently be assessed by any other method. It also offers possibilities for determining degree of relationship and even direction of evolution among closely related taxa. The obvious advantages of the technique may lead to serious errors, however, if the attributes revealed on chromatograms are not subjected to the same rigid evaluation as morphological and cytological characteristics. Erroneous conclusions may arise from failure to assess variation within taxa, failure to establish identity of compounds derived from different taxa, and attempts to relate degree of pattern differences on chromatograms with degree of relationship. Most of these difficulties can be obviated by the realization that the attributes under consideration are chemical compounds, not spots or patterns of spots on chromatograms.

A Wide Species Cross in the Genus *Solanum* (*S. integrifolium* Poir. X *S. melongena* L.). WILLARD YATES, Cumberland College, Kentucky.—In reciprocal crosses of the eggplant, *Solanum melongena* and the ornamental *S. integrifolium* hybrids were secured only with the latter species as the female parent. The hybrids showed conspicuous heterosis but were completely male sterile and showed highly reduced seed set, although it was possible to obtain backcrosses to both parents. Treatment of the F₁ hybrids with colchicine led to the production of an allotetraploid which showed 25-33% pollen fertility but the seed set still remained low. Pollen viability percentages determined by staining with cotton-blue were checked by germination of pollen on nutrient agar, and a high degree of correlation was obtained. At meiosis in the F₁ chromosome pairing was essentially regular and this fact coupled with the reduced fertility of the allotetraploid would suggest that the sterility is genic rather than chromosomal. The taxonomic position of both *S. melongena* and *S. integrifolium* is in great need of clarification. The proper name for the species here identified as *S. integrifolium*, in fact, is far from certain, and it is possible that it should be referred to *S. aethiopicum* L. and that *S. ovigerum* Dun. is a synonym. Until type specimens are examined, the correct name will remain in doubt.

Taxonomic Problems in *Lespedeza*. ANDRE F. CLEWELL, Indiana University.—The difficulty in keying native *Lespedeza*s and the occurrence of occasional extraordinary specimens in most stands of the species has led to an intensive study of populations near Bloomington. Data obtained

during the past two years indicate that variation arises primarily from two sources: one is ecological due to sun and shade forms of each species; the second is due to interspecific hybridization. Transplant studies have provided the ecological data, while most of the evidence for hybridization has come from analyses of mass collections from sympatric populations of *Lespedeza hirta* and *L. intermedia*. In such stands a third taxon, *L. Nuttallii*, occurs infrequently, and when scatter diagram techniques are applied to such populations, *L. Nuttallii* appears as a morphological intermediate between the first two species. Artificial crosses between *L. intermedia* and *L. hirta* are underway; and plants grown from seed taken from wild specimens of *L. Nuttallii* show variation towards the suspected parental species. All species have a chromosome count of $n = 10$, and *L. Nuttallii* shows a number of univalents at meiosis, indicating imperfect pairing. Field studies in seven states show that taxonomic problems in other species probably also can be attributed to both ecological modification and interspecific hybridization.