CONDENSED TANNINS IN *Lotus* SPECIES

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In March, 1992, 164 accessions of *Lotus* were acquired from the USDA-ARS Regional Plant Introduction Station in Geneva, N.Y. Accessions included the species *L. tenuis, L. uliginosus,* and *L. corniculatus*. These accessions were acquired to be evaluated for condensed tannins, as approved and funded by the Clover and Special Purpose Legume CAC.

Methods

Seed were mechanically scarified and planted in a greenhouse in April, 1992, then allowed to grow for 3 weeks. After 3 weeks, plants were clipped to a uniform height of 10 cm and allowed to grow for another month. After the initial clipping, plants were allowed to grow for another month, then transplanted to the University of Missouri Agronomy Research Center near Columbia, MO. The plants were arranged in a randomized complete block design with three replications, and 3 accessions per replication.

In September, 1992, foliage was harvested and stored at -5 C, freeze-dried, and ground to 1-mm using a cyclone type grinding mill. Dried material was analyzed using near infrared reflectance spectroscopy, as reported by Roberts et al. (1992); condensed tannins were quantified and expressed as % catechin equivalents (CE). Significance of treatment effects was assessed at the 0.05 alfa level using analysis of variance techniques. Samples were clustered by the single variable, tannin, according to the Scott-Knott non-overlapping means separation technique.

Results

Data from this study indicated that tannins ranged from 1.67 to 11.44 % CE. As expected from previous reports, *L. uliginosus* contained higher tannin concentrations than other species. In fact, *L. uliginosus* comprised all but one of the 42 accessions in the highest cluster, as well as the top 27 in the next highest cluster. Only 9 *L. uliginosus* appeared in the third cluster, and none appeared in the lowest cluster.

Also as expected, *L. corniculatus* contained both moderate low levels of tannin concentrations. However, *L. tenuis*, a species reported as tannin-negative, also contained moderate and low levels.

These data will be entered in the GRIN system, as well as used in our germplasm development studies at the University of Missouri.