Acid Scarification Requirements of Kentucky Coffeetree (*Gymnocladus dioicus* (L.) K. Koch) Seeds From Southcentral Minnesota

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*Kentucky coffeetree (*Gymnocladus dioicus *(L.) K. Koch) is reported to have an impermeable seed coat that requires 3 hours of acid scarification for germination. In this study, acid scarification did not improve the germination of seeds from southcentral Minnesota.*

Kentucky coffeetree is a woody legume indigenous to the United States. Its range covers Missouri, Illinois, and Indiana and extends into adjacent states. Isolated populations are also found in Minnesota, Tennessee, West Virginia, Pennsylvania, and New York (2). Kentucky coffeetree is reported to have an impermeable seed coat that requires scarification for germination to occur (3). The published scarification recommendations for Kentucky coffeetree are all from the central part of its range. Isolated populations may produce seeds with different scarification requirements.

Methods

Pods were collected from trees in Blue Earth County, MN, during February 1984. The pods were opened immediately and the seeds removed. Eighty seeds were soaked in water for 24 hours and then divided into four scarification treatments. Twenty seeds each were soaked for 0, 1, 2, or 3 hours in concentrated sulfuric acid. After the treatment the seeds were rinsed in water, air dried for 24 hours, and then planted in vermiculite. The seeds were placed in a greenhouse in which day temperatures were maintained at 21 °C, with a 3 °C drop at night.

Results and Discussion

Seeds of Kentucky coffeetree from southcentral Minnesota did not significantly benefit from acid scarification (table 1). This result does not agree with two other studies, which found that germination did not reach 80 percent unless the seeds had been treated for 2 hours in acid (1, 4). The difference in scarification requirements may be due to the origin of the seed trees. The other two studies were conducted with seeds collected from trees in central Illinois and Ohio, whereas ours were from an isolated population in southcentral Minnesota. Kentucky coffeetree growers in other regions may wish to test the acid scarification requirements of local seeds before following the standard recommendations.

Table 1—*Percentage of germination for Kentucky coffeetree seeds scarified in concentrated sulfuric acid.*

Scarification time period (hours)	N	Percentage germination
0	20	80
1	20	80
2	20	85
3	20	75

No significant difference at the P = 0.05 (Duncan's multiple range test).

Literature Cited

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