mix. The optimal root hormone is yet to be achieved although adhering to the use of IBA alone does seem to be affective. Also cuttings are being taken from mature trees and a more juvenile source might significantly increase the rooting percentages.

LITERATURE CITED

Dirr, M.A. 1998. Reference manual of woody landscape plants. 4th ed. Stipes Pub. Co. Champaign, Illinois.

Magnolia tripetala from Seed©

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BACKGROUND

Magnolia tripetala (syn. *M. virginiana* var. *tripetala*) belongs to the Magnoliaceae family with a number of common names including: umbrella magnolia, umbrella tree, and Elkwood. *Magnolia* honors the French botanist Pierre Magnol; *tripetala* refers to the three large petaloid sepals; tree is similar to *M. macrophylla*.

Characteristics: *Tree*: Up to 30 ft tall, with an open crown. *Bark*: Thin and smoothish, light grey. *Twigs*: Thick and shiny, becoming glabrous. *Leaves*: Alternate, obovate 10–24 inches, and clustered near the ends of the branches creating an umbrella effect. Flowers: 6–10 inches across with 6 to 9 petals, creamy white with an unpleasant fragrance, blooms early June in the Hamilton area. *Fruit*: 4 inches long, cone-shaped, rosy red in October. Zones 5–8 (Dirr, 1990).

Distribution: Pennsylvania to Mississippi.

Habitat: Grows in deep, moist valley floors along streams and swamps.

RESEARCH GOALS

At Royal Botanical Gardens in Hamilton, Ontario, there are two very handsome specimens of *M. tripetala*. These plants arrived as seedlings from J. Savage Bloomfield, Michigan, in 1974. Over the years there have been many requests for propagules, especially through the very successful the Gardens' Auxiliary spring plant sale. For the past 15 years we have tried several ways of propagating this magnolia. Softwood cuttings using different types of IBA powder and alcohol at various strengths taken in early June were not successful. Seed collected and given 3–5 months of moist, cold stratification in sand and poly bags or medium and trays in the refrigerator yielded very poor results. Once, seed was sowed directly into a seedbed with good germination, but the plants were mistakenly hoed out, which was frustrating because other direct sowings did not yield such success.

The 2001 seed, after being given the usual cold treatment, did start to germinate but suddenly died. Upon closer inspection, the seed coat, which is black and hard, seemed to impede germination. If this is true, softening the seed coat might improve germination. We decided to soak the seed in H_2SO_4 (concentrated sulphuric acid) for various lengths of time with the hope that it would improve our germination record.

MATERIALS AND METHODS

Seeds were collected on 28 Oct. 2002, after a very hot, dry summer and a poor seed set. The cone-like structures, which were still green and moist, were placed under

fluorescent lights for 2 weeks to dry and open. On 8 Nov., the seeds were cleaned, checked for quality, and then separated into six lots of 100 seeds. Materials include 100% H_2SO_4, beakers, stratification trays, medium, trays, and labels.

All seeds, once treated, were sown in the same medium and given the same length of cold moist stratification. The seed Lot 1 was given 150 days of cold, moist stratification (28 Nov. to 28 April). Seed Lot 2 was given a hot water soak; 98 out of 100 seeds sank over night to the bottom of the beaker, then given the same 150 days of cold stratification. Lots 3, 4, 5, and 6 were respectively given 5-, 10-, 15-, and 20-min soaks in H_2SO_4 (with the hopes of softening the seed coat) and then sown into BX Pro Mix soilless mix, then placed in cold storage for 150 days. The temperatures fluctuated from 40 to 32 ºF. The trays were pulled out of cold storage on 28 April 2003, and put under fluorescent lights for 16 h a day at room temperature.

RESULTS AND DISCUSSION

Seeds started to germinate near the end of May continuing through to the middle of July. The percent germination is shown in Table 1.

Table 1. Effect of seed treatment on germination of *Magnolia tripetala*.

Lot number	Treatment	Germination (%)[z]
1	150-days cold stratification	34%
2	Hot-water soak then 150-days cold stratification	48%
3	5-minute soak in H_2SO_4 then 150-days cold stratification	4%
4	10-minute soak in H_2SO_4 then 150-days cold stratification	3%
5	15-minute soak in H_2SO_4 then 150-days cold stratification	8%
6	20-minute soak in H_2SO_4 then 150-days cold stratification	3%

[z]100 seeds per lot

The percent germination on any of the seed lots treated with H_2SO_4 was less than 10% — closer to 5%. The percent germination for the hot water soak and 150-day cold stratification yielded much better results. Definitely a good enough percentage to make it worth while to use the hot water soak and cold stratification to help seeds germinate for the Gardens' Auxiliary plant sale. We had fun doing this experiment, but we were disappointed with the results.

It seemed that sulphuric acid did not enhance germination. Maybe the strength was too high or the length of soak too long. We need to do another trial this year to see if this method of softening the seed coat really works. Maybe just soaking the seeds in hot water, then giving the seed a moist stratification in the refrigerator would enhance germination, or perhaps a direct sowing after the hot water soak into good old mother earth is the way to go.

LITERATURE CITED

Dirr, M.A. 1990. Manual of woody landscape plants. Stipes Pub. Co., Champaign, Illinois.