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Seed Germination in Swamp Privet (*Forestiera acuminata*)

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INTRODUCTION

Swamp privet (*Forestiera acuminata*) is an underutilized member of the Oleaceae. Swam privet is native to wet areas of the lower Midwest and southeast (USDA Zones 5 to 8). It forms a large shrub or small tree. Plants are dioecious and female plants produce an ovoid, blue-black drupe. Its ornamental potential has not been explored, but it could serve as a non-invasive replacement for privet (*Ligustrum*) as a deciduous hedge. Its foliage is a good, clean dark to dull green and there is usually good yellow fall color. Swamp privet could make a good addition to the plants available for rain garden and bioretention areas.

Oleaceae is an interesting family related to seed germination and dormancy. The family is comprised of 15 genera. Seed dormancy types within temperate genera of the Oleaceae range from having no dormancy (*Ligustrum*), physiological dormancy (*Fraxinus*) to morphophysiological dormancy (*Chionanthus*) (USDA, 2018). There is no current information on propagation in swamp privet, therefore the objectives of this study were to elucidate dormancy and germination conditions for swamp privet.

MATERIALS AND METHODS

Fruits were collected at the blue-black stage and the outer fleshy fruit mesocarp tissue removed by washing. Cleaned fruits containing endocarp and botanical seed were placed in petri dishes containing moistened vermiculite. Dishes were placed directly into 22 or 25^{o}C incubators or cold stratified at 5^{o}C for 3 or 6 weeks before germination at 25^{o}C in 16 hr light. Seeds that failed to germinate after 6 weeks of warm stratification were cold stratified for 3 weeks.

RESULTS AND DISCUSSION

Seeds were endospermic and contained a fully developed embryo that filled the length of the seed. The germination pattern was epigeal with the radicle emerging first followed by elongation of the hypocotyl to raise the cotyledons above the growing substrate (Figure 1).

The highest germination was in seeds placed directly at 22^{o}C (63%). Seeds cold stratified for 3 or 6 weeks did not germinate to the same extent as seeds only exposed to warm stratification. Germination was higher at 22 compared to 25^{o}C.

Also, non-germinated seeds from this group that were cold stratified for 3 weeks subsequently germinated at near 100%. This suggests that fresh swamp privet seeds have conditional dormancy.

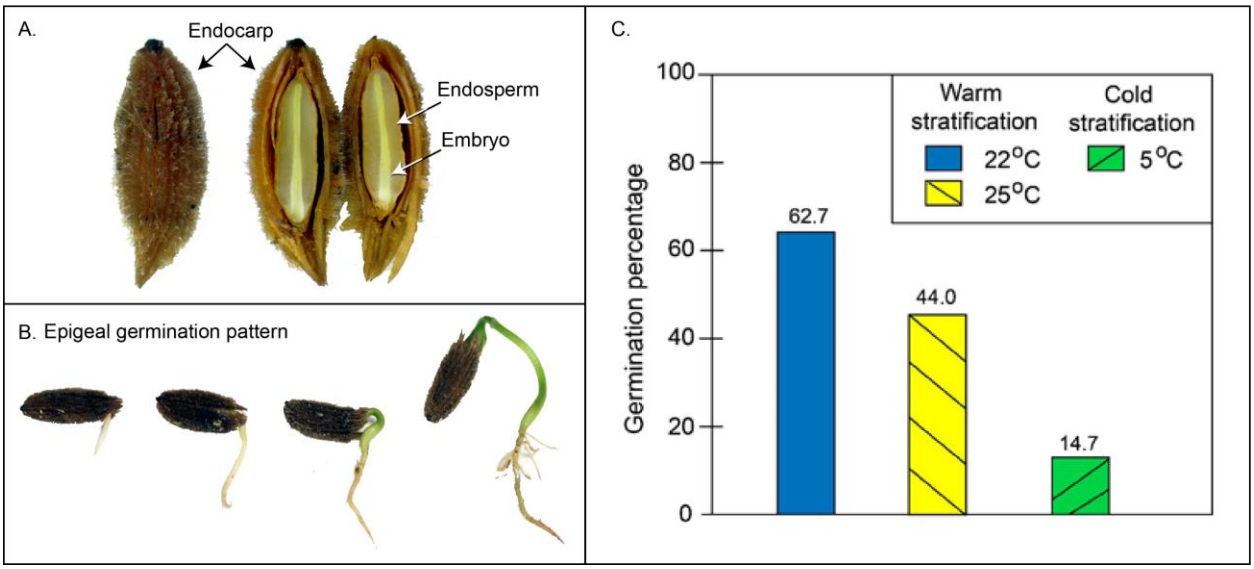

Figure 1. (A) fruit and seed morphology and (B) germination pattern in swamp privet.
(C) Seed germination after 6 weeks following warm or cold stratification in swamp privet.

Literature cited

USDA Forest Service Agriculture Handbook 727. The Woody Plant Seed Manual. 2018. Government Printing Office. Wash. DC. https://archive.org/details/TheWoodyPlantSeedManual.