PROPAGATION AND CONSERVATION OF THREE RARE NORTH AMERICAN ASH SPECIES USING SOMATIC EMBRYOGENESIS

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In addition to threatening North American ash species of major ecological and economic importance, such as green, white, and black ashes, emerald ash borer (EAB; *Agrilus planipennis*) also threatens other native ash trees, of which there are at least 18 North American species. Some of these ash species are comparatively rare. Although not much is known about the susceptibility of most of these species to EAB, some may be at higher risk of extirpation from their native ranges than the more common ash species, due to their smaller ranges and population sizes. Thus, there is a need to extend germplasm conservation efforts to these rare ash species. One approach is to establish new embryogenic cultures of rare ash species for which somatic embryogenesis (SE) has not yet been reported, with the goals using the cultures for propagation and germplasm conservation via cryostorage. We worked with cooperators to locate trees and collect seeds from three rare ash species, Carolina ash (*Fraxinus caroliniana*), Texas ash (*F. albicans*) and Mexican ash (*F. berlandieriana*), for use as explants for SE culture initiation. Immature seeds were harvested from source trees during late summers of 2019 and 2020, and immature zygotic embryos were dissected from them and cultured on media with varying concentrations of 2,4-dichlorophenoxyacetic acid (2,4-D) or picloram. SE was achieved in all three species, with the highest induction rate in Texas ash (12%). Carolina ash somatic embryos from cultures initiated in 2019 were successfully converted to somatic seedlings and hardened off to greenhouse conditions. Somatic embryos from the Texas ash and Mexican ash cultures initiated in 2020 are expected to produce plantlets following pre-germination cold treatment.