ISOLATION OF DNA FROM FOURTEEN HARDWOOD TREE SPECIES AND AMPLIFICATION USING RAPD TECHNOLOGY

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A CTAB extraction method was used to isolate DNA from leaf samples of fourteen mature and five juvenile hardwood tree species. Species studied included six oaks and two hickories, as well as tulip poplar, sugarberry, dogwood, persimmon, blackgum and swamp tupelo.

DNAs isolated from samples collected in spring and late summer from the same source were compared to determine if amplified products remained consistent over season and physiological state. Additional phenol:chloroform:isoamyl alcohol (PCIA) purification was usually necessary to treat the DNA before it could be amplified using random primers that detect polymorphic DNA (RAPD) markers. DNA samples, before and after PCIA purification, were amplified and compared to determine if purification affected the integrity of the DNA. Extraction procedures and amplified products of DNAs isolated from leaf samples of mature trees and juvenile seedlings of the same species were compared.

Further studies were conducted on the masting (acorn, nut, seed) phenomenon for several of the oak species using bulk segregant analysis methodologies.