

ORGANOGENESIS FROM NODULAR CULTURES OF *LIQUIDAMBER STYRACIFLUA*  
L. (SWEETGUM)

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Plantlet regeneration has been obtained from nodule cultures of *Liquidamber styraciflua* L. (sweetgum). Nodules in a continuum of sizes were produced from leaf pieces by culture in liquid Woody Plant Medium (WPM) (Lloyd & McCown 1981) containing 5 uM benzyladenine (BA) and 0.5 uM naphthaleneacetic acid (NAA). Three sizes of nodules were evaluated for growth and regenerative capacity. The best culture conditions for shoot induction were observed using nodules with a diameter 2.5 mm cultured on WPM containing 5 uM BA and no auxin. Root induction alone was induced from all nodule sizes in liquid medium containing 0 - 0.5 uM BA and 0 - 5 uM NAA. We have taken this system and produced transgenic sweetgum plants using *Agrobacterium* (see accompanying abstract).

We have identified three distinct morphogenic stages occurring during nodule development: 1) vascularization, 2) shoot initiation, and 3) root formation. The smallest nodules have no vascularization and consists of thin walled cells. These small nodules differentiate vascular elements (tracheids) in the center of the nodule when it is still quite small (less than 2mm). The appearance of vascular elements precedes shoot or root formation. The ability of this system to specifically produce tracheids, shoot or roots in response to culture conditions provides a useful system for the study of factors regulating vascular, root and shoot development in woody plants.

Lloyd, DG and BH McCown (1981) Proc. Int. Plant Prop. Soc. 30:421-427.