



In Vitro Comparison of Benzyladenine and *meta*-Topolin on Shoot Proliferation of River Cane, a Candidate for Wetlands Restoration

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Introduction

- River cane (*Arundinaria gigantea*) is an endangered, native, North American bamboo.
- Fast growth, dense roots, and preference for rivers make it ideal for wetlands restoration.
- No complete tissue culture protocol has been developed for River cane.
- The cytokinin benzyladenine (BA) is widely used for shoot proliferation, but *meta*-topolin (mT) offers potential advantages over BA; however, neither has been tested in River cane.
- Sustainable restoration also requires knowledge of population genetic structure including number of genotypes within populations, along with genotype size and distribution.

Methods in Brief

Tissue Culture:

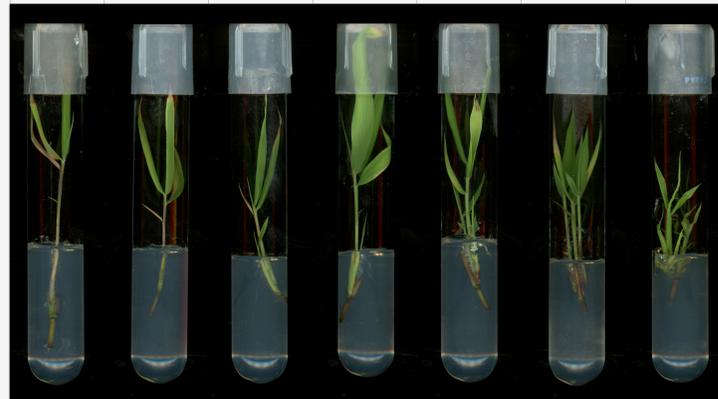
Nodal sections of greenhouse-grown rhizomes were disinfested according to Thakur (2006) with Procure 480 SC and rifampicin. Basal MS media was used or supplemented with filter-sterilized BA and NAA or mT.

Population Diversity:

A dense population of River cane in Athens-Clarke County, GA was assayed with six fluorescently labeled SSR loci developed in three related bamboo species (*Phyllostachys edulis*, *Sasa senanensis*, and *Sasa cernua*)

Tissue Culture

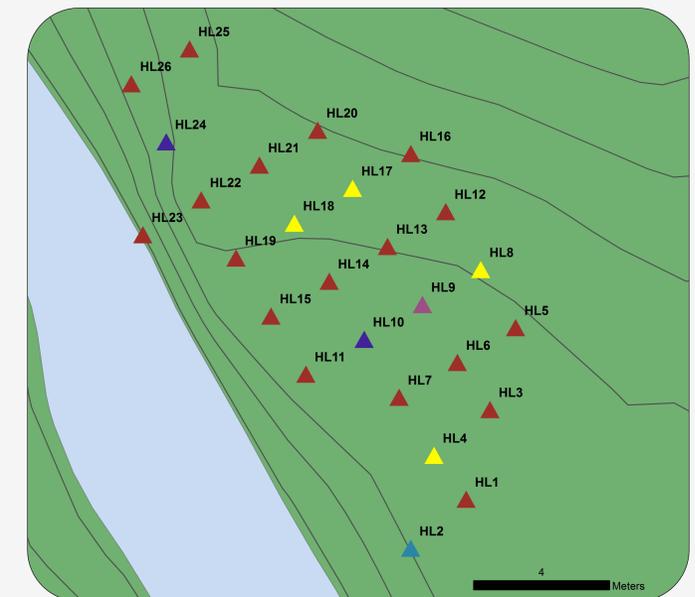
- Neither mT nor BA affected summed height.
- 10 mg/L BA reduced maximum height.
- 7 mg/L BA produced the highest multiplication rates, but multiplication was statistically equal for all cytokinin treatments except 0.1 mg/L mT.



Max height mean separation by Tukey's HSD ($\alpha=0.05$). Fold multiplication and p-values calculated using a Poisson regression. Mean separation for fold multiplication by pairwise Wald's Tests ($\alpha=0.05$). Values or bars with the same letter do not differ statistically.

Population Diversity

- One genotype dominates the population.
- Populations are not totally clonal.
- The dominant genotype extends the length of the population.
- Results corroborate previous studies, but likely underestimate genotypic diversity.



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