

***Ilex vomitoria*: An overlooked North American caffeine source.** (Oral Presentation)

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Introduction

Yaupon holly (*Ilex vomitoria*) is a caffeine-producing shrub native to the southeastern United States that Amerindians brewed into a stimulating beverage. Although European colonists adopted the practice of brewing and imbibing tea prepared from yaupon, common consumption of yaupon tea ceased by the nineteenth century for reasons not fully understood. Despite its potential as a source of both caffeine and antioxidants, yaupon is currently only cultivated for use as an ornamental hedge. We investigated the suitability of one yaupon cultivar for commercial production as a caffeine source.

Objectives

To determine whether nitrogen fertilization increases total leaf mass, total caffeine content, and total antioxidant capacity in a cultivar of yaupon.

Methods

Yaupon shrubs comprising 6 separate hedges of the 'Nana' cultivar were sampled. Leaves covering an area of 700 cm² were clipped from the pruned upper surface of 2 shrubs per hedge. One shrub per hedge was then fertilized monthly with 250 mg nitrogen; the other shrub was reserved as an unfertilized control. After 3 months, leaves were clipped from the same area as the original clipping. Leaves from the second harvest were then dried, weighed and analyzed for caffeine and antioxidant capacity by HPLC and the oxygen radical absorbance capacity (ORAC) method.

Results

Fertilized plants only produced 1.2% more leaf tissue than control plants but contained 3.5% higher caffeine concentrations, which resulted in 4.5% higher total caffeine yield in fertilized plants. Although antioxidant capacity on a concentration basis did not differ by treatment, total antioxidant capacity per plant was higher in fertilized plants due to the greater leaf mass of fertilized plants.

Conclusion

Increases in caffeine content and total antioxidant capacity by nitrogen fertilization in yaupon indicate its appropriateness for cultivation as a commercial caffeine source. The yaupon cultivar sampled in this study, however, produced low caffeine concentrations as compared to those detected in studies of wild-type yaupon. Therefore, other yaupon varieties may be better suited for cultivation as a caffeine source.

Keywords: antioxidants, yaupon holly

Selected References

1. Hudson, C.M. 1979. Black drink: A Native American tea. The University of Georgia Press. Athens, GA.

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