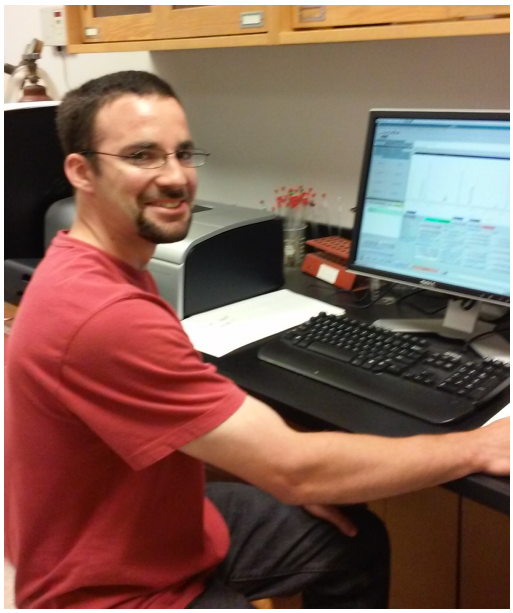

Eugenol Isolation and Derivatization for Incorporation into Synthesis Laboratories

A quick and economical pressurized hot water extraction method for the isolation of eugenol from cloves, based on the work of Just and coworkers, has been optimized; by use of a commercially available espresso machine, up to 0.58g of eugenol has been isolated from 15g of cloves. Currently, the synthesis of (*E*)-4-(4-hydroxy-3-methoxyphenyl)but-2-en-ol, based on the cross-metathesis of eugenol and *cis*-2-butene-1,4-diol reported by Taber and coworkers, is being explored using a quantitative NMR internal standard. This work will be developed into an upper-level undergraduate research-based teaching laboratory focused on the study of natural product extraction, characterization techniques, methods optimization, and synthetic derivitization. Additionally, students will use the cross-metathesis product as the starting material for producing a detailed multi-step synthesis plan based on their prior knowledge of organic reactions, SciFinder scholar searches, and the chemical literature.

Ground Cloves

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