Isolation of Antitermitic Compound-Producing Endophytes from Western Red Cedar (WRC) and Port-Orford Cedar (POC)

Liqin Sun, Chung-Yun Hse, Todd F. Shupe, and Kai Zhao

Abstract

Environmental disposal concerns have limited the use of many wood preservatives. Thus, interest in the development of alternative, environmentally-benign preservatives has intensified. This preliminary study evaluated the possibility that secondary metabolites produced by endophytic fungi of naturally durable trees may serve as viable alternatives to currently used termiticides. More than 140 endophytes were obtained from Eastern red cedar (*Juniperus virginiana)* and Port Orford cedar (*Chamaecyparis lawsonoiana*). In addition, more than 20 endophytes were also obtained from the gut of Formosan termites (*Coptotermes formosanus*), and based on their cellulosic degradating activities, a bacteria (*Bacillus spp.)* and a fungus (*Acrogenospora spp.*) were selected from the termite gut endophytes as index strains for screening the inhibitory activities of the tree endophytes using agar diffusion assay. Based on our preliminary results, two endophytes from Port Orford cedar and two from Eastern red cedar were chosen for the study. HUB-I-011 showed the strongest inhibitory activities to white-rot fungi (TV) and brown-rot fungi (GT). Further test showed inhibitory activities of HUB-I-011 against white-rot fungi and brown-rot fungi significantly increased from 2.5% and 2.0% concentration, and feeding live termites test was in progressing. This is the first time to show antitermitic activities on endophytes isolated from natural resistance trees.

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Isolation of Antitermitic Compound-Producing Endophytes from Western Red Cedar (WRC) and Port-Orford Cedar (POC)

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Effect of Heat Treatment on Some Properties of Southern Pine and Aspen

Presenter: Çağatay Taşdemir, Student, Oklahoma State University

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Time Effect on Strand Size Distribution Tumbling in an Oriented Strand Board Rotary Drum Blender

Presenter: Ying-Li (Ingrid) Tsai, PhD Candidate, University of British Columbia

Gregory D. Smith, Associate Professor, Department of Wood Science, University of British Columbia

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End of Life Options for Wood Based Furniture

Presenter: Mesut Uysal, Purdue University

Eva Haviarova, Associate Professor, Forestry and Natural Resources, Purdue University

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Environmental Regulations Affecting Global Furniture Production

Presenter: Mesut Uysal, Purdue University

Eva Haviarova, Associate Professor, Forestry and Natural Resources, Purdue University

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Soy-Based Polyurethane Reinforced With Cellulose Nanocrystal and Hydroxyapatite Particles for Bone Regeneration

Presenter: Jinglei Wu, Graduate Research Assistant, University of North Texas

Sheldon Q. Shi, Associate Professor, University of North Texas

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Nanofiber Yarn Hybrid Scaffolds for the Biomedical Application

Presenter: Jinglei Wu, Graduate Research Assistant, University of North Texas

Sheldon Q. Shi, Associate Professor, University of North Texas; Xiumei Mo, Biomaterials and Tissue Engineering Laboratory, College of Chemistry and Chemical Engineering and Biological Engineering, Donghua University