

Ectomycorrhizal Diversity Associated With Tanoaks (*Lithocarpus densiflorus*)¹

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Abstract

Ectomycorrhizal fungi are important symbionts of many temperate plant species. *Phytophthora ramorum* has caused widespread mortality of tanoaks along California's coastal regions. Because tanoaks form ectomycorrhizal associations, local extinction may impact ectomycorrhizal symbionts. Our goal in this study is to identify the predominant ectomycorrhizal fungi from tanoak and to determine the relative abundance of taxa. To determine the community composition of ectomycorrhizal fungi, 15 plots were established in tanoak stands near the town of Whitethorn, California in Humboldt County, California. Root tips were sorted from soil core sections of equal volume, bulked and amplified using general primers that target the ITS region and a portion of the 28S rDNA. To differentiate taxa, melt-temperature profiles were performed for 80 PCR products cloned from each plot. Samples with unique melt-temperature profiles were sequenced to differentiate taxa. From 382 ITS sequences, 83 ectomycorrhizal taxa were detected. Taxa with the broadest spatial distribution included *Cenococcum geophilum*, *Lactarius*, *Phialophora*, *Russula*, and *Tomentella*. This is the first comprehensive study of the ectomycorrhizal composition of tanoak. Information collected from this study can be used as baseline information for future studies to investigate the impacts of *P. ramorum* on the ectomycorrhizal fungi of tanoak.

Key words: community, ectomycorrhiza, species richness

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