

BayCEER Kolloquium

Lectures in Ecology and
Environmental Research

WS 2016/17



UNIVERSITÄT
BAYREUTH

Thursday

19.01.2017

12:00 in H6, GEO

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Hochschule für angewandte
Wissenschaften Coburg

Applied microbial ecology is an exciting topic in wood degradation, gas production and food safety

The presentation will start with an overview of Coburgs broad spectrum of applied microbial ecology in food safety and gas production and will thereafter mainly focus on chemical protection against microbial wood degradation processes.

The wood protection industry has refined their products from chrome-, copper-, and arsenate-based wood preservatives toward solely copper-based preservatives in combination with organic biocides. Environmental use of copper-based preservatives leads to an enrichment of copper tolerant microbial communities in respective soil environments. Such soil communities are overall able to decompose copper-based preserved wood over a long time period and thus leading to major damages in wooden stakes. As result we could show that Cu-HDO, containing the chelation product of copper and N-cyclohexyldiazonium dioxide (HDO) has been consumed by bacterial members of the phylum *Acidobacteria* and the genera *Phenylobacterium* and *Comamonas*. To reduce microbial degradation of wood preservative compounds encapsulated wood preservatives were tested in a lab as well as in a field approach. Fungal and bacterial composition were both significantly site and soil parameter specific but were less affected by wood preservation and time.