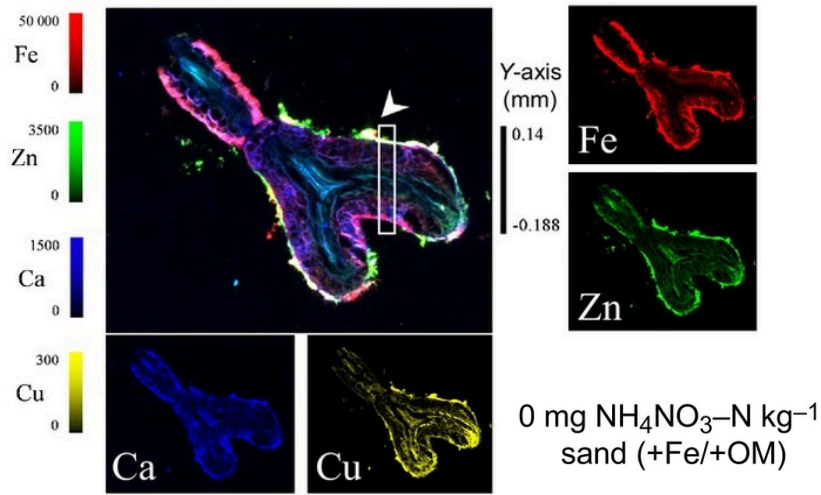


Symbiotic fungi liberate iron from soil organic matter and share with plants



Element-specific SXRF images of calcium (Ca), copper (Cu), Fe (iron), and zinc (Zn) in cross-section of EMF pine root (+Fe/+OM) providing quantitative cell-by-cell nutrient abundances and localization patterns at the plant-microbe interface.

H. Wang, K. Zhang, R. Tappero, T.W. Victor, J.M. Bhatnagar, R. Vilgalys, H. Liao. *New Phytologist* 245, 6, pages 2715-2725 (2025) DOI: [10.1111/nph.20394](https://doi.org/10.1111/nph.20394)

Scientific Achievement

Researchers discovered ectomycorrhizal fungi (EMF) liberate more Fe – a limiting nutrient – from soil in the absence of salt fertilizer and in the presence of natural organic matter (OM).

Significance and Impact

Study adds key details to scientists' understanding of how EMF scavenge nutrients for plant hosts in marginal soils.

Research Details

- Loblolly pine growing in nutrient-poor soil was inoculated with a *Suillus* fungi and amended with OM and/or nitrogen salt fertilizer.
- Synchrotron X-ray microfluorescence (SXRF) imaging at the NSLS-II XFM beamline showed that EMF tune their mechanism of Fe acquisition to the type of environmental nitrogen.

Work was performed in part at NSLS-II

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