The role of endophytic fungi on the accumulation and tolerance of arsenic (As) in mining-impacted watersheds in the western U.S. is gaining attention. Understanding the potential mechanisms for tolerance and As accumulation can aid in risk reduction strategies for nearby Indigenous communities. Endophytic fungi are present in ubiquitous plants in the natural environment and contribute to plant growth and tolerance to environmental stress conditions, such as metal(loid) contamination. Thus, we integrated microscopy, spectroscopy, culturing and molecular biology, and aqueous chemistry to improve knowledge of interfacial processes that affect accumulation of As in Schizachyrium scoparium (little bluestem) with endophytic fungi. In addition to an increase in biomass and length of endophyte colonized roots, electron microprobe X-ray mapping analyses detected Ca-P and Mg-P minerals with As on the root surface of exposed plants, suggesting that these minerals could lead to As adsorption on the root surface through surface complexation or co-precipitation. Our findings provide new insights regarding biological and physical-chemical processes affecting As accumulation in plants for risk assessment applications and bioremediation strategies.

**Abstract**

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**Background**

Dr. Cherie De Vore, Diné, is originally from Crownpoint, NM in eastern Navajo Nation. She is currently a postdoctoral scholar in Earth Systems Science at Stanford University and an Assistant Research Professor at the University of New Mexico in the department of Civil, Construction & Environmental Engineering. She received her Ph.D. in civil & environmental engineering at UNM under the mentorship of Professor Jose Cerrato. Cherie was recently awarded an NSF Earth Science Postdoctoral Fellowship to conduct research under the guidance of Professor Scott Fendorf. Her current research is related to better understanding biogeochemical mechanisms affecting the mobilization and bioavailability of metals in soils and plants near Indigenous communities.