

Drinking Water Purification for U.S.A.-Mexico Border Region

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Purpose of the Study

Near Columbus, New Mexico, and Palomas, Mexico, the groundwater from wells is contaminated with relatively high levels of fluoride and arsenic that pose health threats to both communities, especially to children. The researcher will implement sol-gel derived mesoporous alumina-based adsorbents in some wells in the area to remove arsenic and fluoride from the groundwater to below 10 ug/L and 4 ug/L, respectively.

Study Underway

- The researcher will synthesize 2-3 kg of mesoporous alumina with a sol-gel method and determine the adsorption properties of arsenic and fluoride on the alumina.
- The alumina adsorption system will then be tested in Columbus, NM, and Palomas, Mexico, for its efficacy.

Benefits

- This technology can be used in large water treatment plants for whole communities or in individual households.
- Finding an effective purification technique for water contaminated with arsenic and fluoride will benefit the communities of Columbus and Palomas as well as other small communities.



Arely works with an adsorption unit in the lab. She is from Juárez, Mexico, and is currently pursuing a B.S. in chemical engineering from NMSU. She hopes to get a Ph.D. in chemical or environmental engineering with a focus on water issues. She would like to work in industry for a few years before becoming a professor.