



TECHNOLOGY

Enrichment of Zinc and Cadmium in Phytoaccumulator Biomass

OVERVIEW

"Phytomining refers to the extraction of metals from metal-accumulating plants. Known as hyperaccumulators, such plants can be grown in areas that are toxic to other life, such as mining sites contaminated with heavy metals. They can also be grown in soil that contains trace metals. Phytomining nickel, for example, can occur in soil with as little as 0.05 percent of the metal.

Hyperaccumulating plants transfer metals from their roots to their stems and leaves in a process known as phytoextraction. They also pump organic compounds from their leaves back into the soil, supporting the development of microbial activity and helping remediate toxic land.

For example, a team that included the USDA announced in January 2002 that it had evaluated several hundred hyperaccumulators and selected traits that led to excellent extractors of such metals as nickel and cobalt.

Research from the U.S. Department of Agriculture indicates that a phytomine crop could produce a minimum of \$2,000 per hectare, compared to \$50 to \$100 per hectare for food crops grown on low-grade land." see <http://www.betterhumans.com/Resources/Encyclopedia/article.aspx?articlel...> or <http://www.betterhumans.com/>

Although much research has been compiled demonstrating selectivity for such plants, little work has been done to answer the question about what to do with the resulting metal-containing vegetation that is harvested.

For example, freshly harvested *Thlaspi* plants contain 0.9 percent zinc by weight. Even though this is a heavy concentration in a plant, the zinc concentration is low of commercial purposes.

Environmental engineers at the University of Maryland have developed processes for concentrating desired metals while removing extraneous metals.

For more information, please contact the Office of Technology Commercialization at the University of Maryland, 301.405 3947 or by e-mail at otc@umd.edu.

CONTACT INFO

UM Ventures
0134 Lee Building
7809 Regents Drive
College Park, MD 20742
Email: umdtechtransfer@umd.edu
Phone: (301) 405-3947 | Fax: (301) 314-9502

Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

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CATEGORIES

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EXTERNAL RESOURCES

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