Discovery of the secrets that enable plants near Chernobyl to shrug off radiation

September 15 2010

Scientists are reporting discovery of the biological secrets that enable plants growing near the Chernobyl Nuclear Power Plant to adapt and flourish in highly radioactive soil -- legacy of the 1986 nuclear disaster in the Ukraine. Their study, which helps solve a long-standing mystery, appears in ACS' *Environmental Science & Technology*.

Martin Hajduch and colleagues note that plants have an unexpected ability to adapt to an environment contaminated with radiation following the April 26, 1986 accident at Chernobyl.

Their previous research, for example, showed that soybean plants in the area have adapted to the contaminated soil with certain changes in their proteome.

A proteome is the full complement of proteins produced by the genes in a plant or animal. But the broader range of biochemical changes in plants that allow them to thrive in this harsh environment remained unclear.

The scientists grew flax seeds in radiation-contaminated soil in the Chernobyl region and compared their growth to those of seeds grown in non-radioactive soil. Radiation exposure had relatively little effect on the protein levels in the plants, with only about five percent of the proteins altered, they note. Among them weree certain proteins involved in cell signaling, or chemical communication, which might help the plants shrug-off radioactivity, the scientists suggest.

More information: "Proteomics Analysis of Flax Grown in Chernobyl Area Suggests Limited Effect of Contaminated Environment on Seed Proteome", *Environmental Science & Technology*.

Provided by American Chemical Society