

Microalgae and aquatic plants can help to decrease radiopollution in the Fukushima area

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After a huge earthquake caused severe damage to the Fukushima 1 Nuclear Power Plant in 2011, Japanese plant scientists have been working to determine the impact of radioactive contamination on wild and cultivated plants. In a special issue of Springer's *Journal of Plant Research*, these experts examine the potential adverse effects of radioactivity on nature and society.

Of particular interest is an article focusing on the efforts of a research group led by Yoshihiro Shiraiwa of the University of Tsukuba. Seventeen microalgae, aquatic plants and algae that are able to

efficiently remove [radioactive cesium](#), iodine and strontium from the environment were identified. The findings add to existing bioremedial options which could help to decrease radiopollution in the Fukushima area.

Such measures are of utmost importance, because a large quantity of radioactivity has been released into the atmosphere. At the same time, the volume of radio-polluted [water](#) is increasing daily because of the continuous injection of cool water and the incurrent of underground water into the still defective reactor.

Because the plant strains identified are easy to harvest and dry, they could be potentially useful to recover radioactive cesium from a huge volume of radio-polluted water if cesium is dissolved in water.

Notably, a eustigmatophycean unicellular algal strain, nak 9, was found to be the most efficient in eliminating up to 90 percent of cesium without any special treatment needed. The researchers suspect the alga is able to do this by accumulating [cesium](#) on its cell surface. Potentially, nak 9 could be used to decontaminate highly radio-polluted water stored in Fukushima's nuclear reactor building, or to reduce the volume of the radio-polluted water. The researchers noted, however, that further studies are needed on the mass cultivation and efficient coagulation and sedimentation of these algal strains before their findings can be put into practice.

"Biological concentration of radionuclides is an essential technology for bioremediation of radio-polluted soils and water," said lead researcher Yoshihiro Shiraiwa. "Therefore our results provide an important strategy for decreasing radiopollution in the Fukushima area."

More information: Fukuda, S., Shiraiwa, Y., et al. (2013). Global searches for microalgae and aquatic plants that can eliminate radioactive

cesium, iodine and strontium from the radio-polluted aquatic environment: a bioremediation strategy. *Journal of Plant Research*. DOI: [10.1007/s10265-013-0596-9](https://doi.org/10.1007/s10265-013-0596-9)

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