Oil seed rape grown for biofuel can help clean up toxic soils

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Oil seed rape grown for biofuel in Ireland could help clean up contaminated soils, scientists heard today at the Society for General Microbiology's Autumn meeting being held this week at Trinity College, Dublin.

Using plants to help clean up heavily polluted soils has been successfully tested for many years and shown to be a cheap and environmentally friendly way to clear heavy metals such as arsenic, copper, zinc and chromium from contaminated land. The main problem with the method has been the amount of time it takes to grow successive crops of plants to clean up an area. Now scientists may have come up with a solution by combining heavy metal tolerant bacteria with plants used to make biofuels such as oil seed rape.

"We discovered that inoculating the plants with metal resistant bacteria provided them with sufficient protection that their seeds germinated better and their growth was enhanced. The plant leaves accumulate the metals, the bacteria deal with the contamination, and the plants seem to benefit from some of their activity," says Olivia Odhiambo from the Institute of Technology, Carlow, Ireland.

Oilseed rape is a member of the *Brassica* family, which also includes cabbages and Brussels sprouts. It is well suited to Irish growing conditions and is already widely grown by farmers for biodiesel production.

"As some of the bacterial strains we tested are showing enhanced growth properties in the crop, this also means greater plant production and more biodiesel," says Olivia Odhiambo. "This is good news for owners of land that cannot currently be used for food plants due to heavy metal contamination. However, this technology could also have much wider implications in improving biofuel crop production nationally and internationally by simply helping farmers grow more fuel per hectare."

The scientists have looked at two types of metal tolerant bacteria which colonise the leaves of the oil seed rape plants and one metal tolerant type that lives in the roots of other brassicas and found that all three were successful in promoting the plant growth, although they did show different tolerances to different heavy metals. The Carlow team now hopes to extend their study to include other commercial biofuel plants and different strains of metal resistant bacteria.

Source: Society for General Microbiology

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