Fungus that feeds on petrol

Brick-biting, blade-chewing and automobile-consuming people have made news too frequently; we have also heard of those who develop a strong addiction to the odour of petrol and kerosene. But it is rare to hear of organisms that 'drink' petrol for their energy needs. J. Savitha and C. V. Subramanian from the Centre for the Advanced Study in Botany at the University of Madras, report of a strain of fungus that does exactly this (**page 596 - 600**). About ten years ago, this group isolated from the effluents of the Madras Oil Refineries, a strain of *Aspergillus flavus* that degrades the hydrocarbons in crude oil. This organism obviously, is potentially useful in cleaning up the ecosystems that are polluted with the crude oil from the industrial effluents or from the oil sleaks in the ocean.

Such organisms, both fungi and bacteria that live in the soil and aquatic systems enriched with crude are being reported ever since the late sixties. Perhaps one of the most interesting among them is the isolation of two strains of *Cladosporium resinae* from the aircraft jet fuel systems by Cofone and his colleagues at the University of Dayton, Ohio, USA. But some of the earlier reports did not clearly establish whether the fungi isolated from the oil-rich soils and marine ecosystems could indeed use and degrade the crude oil on their own. It was suggested that the fungal mycelia might only help in penetrating the insoluble substance such as oil and in increasing the surface area for bacterial attack.

In the recent past, however, these doubts are swept aside and substantial evidence exists to indicate that the fungi indeed consume and degrade the crude oil from the polluted systems. Savitha's group, besides adding another fungus to this list of oil-eating organisms, has also compared for the first time its enzyme activities when grown on glucose with that when grown on crude petroleum oil. Their study shows that *A. flavus* growing on crude oil exhibits 3 to 6-fold enhanced lipid levels with a significantly altered fatty acid profile. They also show that such enhanced lipids in the tissue are brought about by the altered activity in a set of enzymes that probably facilitate the oxidation of alkanes in the crude oil. But what is the significance of such enhanced lipid levels? Is it merely a physiological consequence of 'living' in the oil or is it a physiological adaptation of overcoming the problems of overconsuming the oil? Clearly, the work by Savitha and her group opens up more interesting questions besides being potentially useful in applied microbiology.

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