Less trouble at mill, thanks to earthworms

July 16 2009

Waste from the textiles industry could with the assistance of earthworms and some animal manure become a rich compost for agriculture, according to a report in the *International Journal of Environment and Pollution*.

Most gardeners will tell you the earthworm is their best friend as it aerates the soil and helps break down compostable materials so releasing nutrients for improved plant growth. One particular species of earthworm, known as *Eisenia foetida*, thrives in rotting vegetation, compost, and manure. This species is grown commercially for composting because of their skills at converting organic waste into rich compost.

E. foetida is ambivalent about the source of organic matter it will vermicompost. It will wriggle its way through kitchen waste, animal manure, and many other materials. According to Vinod Garg, Renuka Gupta and Priya Kaushik of Guru Jambheshwar University of Science and Technology, in Haryana, India, say the red wrigglers could even be used to produce compost from the huge volumes of solid sludge produced by the textiles industry.

Sludge from the textiles industry is usually difficult to dispose of. Landfill and incineration are not viable options given environmental concerns and expense. As such, the industry in India is under pressure to find a sustainable and cost-effective alternative to disposal of industrial sludge.

Garg and colleagues have now tested vermicomposting of solid textile mill sludge that has been spiked with urine-free cow and horse dung, collected from local farms, in a six-month pilot-scale experiment using *E. foetida*.

The composting process changes the physical and chemical properties of the test mixtures significantly, the team found. The vermicomposts are much darker than the original materials and form compost-like, homogeneous mixture after just 180 days.

The team also found that the earthworms grow well in this manure-enhanced sludge. They lower the pH of the alkaline sludge, free up mineral ions, including potassium, decrease the ratio of carbon to nitrogen of the material, and boost the amount of nitrogen and phosphorus available for plant growth within a matter of weeks.

Source: Inderscience Publishers (news : web)

Citation: Less trouble at mill, thanks to earthworms (2009, July 16) retrieved 10 May 2024 from https://phys.org/news/2009-07-mill-earthworms.html