Clean energy from rotting waste

At the Fraunhofer Institute for Interfacial Engineering and Biotechnology (IGB) and the Schwarting-Uhde company, Germany, researchers have developed technology to produce clean energy from decaying domestic waste. Conventional solutions of dealing with such waste include combustion and biological degrading, which significantly reduce the volume of waste and the biogas produced by digestion is used for power generation. IGB researchers have improved the technology involved by reducing the dry organic matter, which makes up about 60 per cent of such residual waste, by almost 90 per cent and concurrently doubling the biogas yield.

Fraunhofer researchers refined the normal two-stage process, adding micro-filters to the second phase of processing – under hermetically sealed conditions. Sludge liquor passes through these filters while the residual mass continues to rot and shrink – to less than half the volume compared with earlier techniques. Air is then brought to play, along with special fungi, to reduce the amount of lignin in the biomass, which cannot be degraded easily by fermentation. This mass is finally digested, thereby further reducing the final volume. The odour-free residual solids can then be disposed of at landfill sites. Apart from household waste, the new method can also treat other forms of organic waste like biowaste, slurry, sewage sludge or natural materials used in various industries.
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