

# Wakame waste

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Bacteria that feed on seaweed could help in the disposal of pollutants in the world's oceans, according to a new study by researchers in China and Japan. The discovery is reported in the *International Journal of Biotechnology*.

Shinichi Nagata of the Environmental Biochemistry Group, at Kobe University, Japan, working with colleagues at Shimane University and at Nankai University, China, explain that as marine pollution is on the increase novel approaches to removing toxic contaminants is becoming an increasingly pressing issue. They point out that various species of seaweed are able to extract toxic compounds from seawater and point to the brown seaweed, *Undaria pinnatifida*, known as wakame in Japan as having been the focus of research in this area for almost a decade.

Wakame can thrive even in the presence of carbon, ammonium, nitrate and phosphate in sea water that would otherwise be lifeless. However, there remains the problem of how to dispose of planted wakame, once it has feasted on organic and inorganic pollutants in seawater.

Organic pollutants are absorbed by cultured wakame and so cultivated wakame must be treated as a kind of toxic waste rather than a useful byproduct of marine bioremediation. The researchers point out that there may be a simple solution to the disposal problem. Natural wakame has been used as a fertilizer since ancient times, they explain, so the composting process could be an effective means of degrading wakame into a useful form and so recycling organic substances containing C, N and P from coastal waters.

The team has now found a highly efficient way to accelerate the composting process in the form of a novel marine bacterium, identified as a *Halomonas* species and given the label AW4.

Partial DNA analysis helped identify the active species isolated from the seaweeds in Awaji Island, Japan. The researchers explain that strain AW4 grows well even at high salt (sodium chloride) concentrations and can reduce the total organic components, including pollutant content, of the seaweed significantly within a week.

Source: Inderscience Publishers

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