



Professor Grant Burgess (left) and Dr Michael Hall (right) | Photo source [Newcastle University](#)

[Innovation](#) > [Science](#) > [Seaweed bacteria helps laundry become eco-friendly](#)

SEAWEED BACTERIA HELPS LAUNDRY BECOME ECO-FRIENDLY

 SCIENCE

Researchers have found a natural enzyme that can clean clothes at low temperatures and is safe for the environment

Spotted: Even after passing through water treatment plants, phosphates from laundry and dishwasher detergents still find their way into rivers, ponds and lakes, where can trigger widespread growth of algae that saps the water’s oxygen, reduces water tension and decreases biodiversity. Now, scientists at Newcastle University have discovered an enzyme which acts as a powerful, natural cleaner, in place of harmful phosphates.

The phosphodiesterase enzyme is used by bacteria to break down ‘sticky’ molecules found on the surface of seaweed and helps the bacteria to unstick themselves from the seaweed. The university team, led by Professor Grant Burgess and Dr Michael Hall, worked in conjunction with Proctor & Gamble to isolate the enzyme and demonstrate its effectiveness as a cleaner.

The enzyme, which is isolated from a marine bacterium called *Bacillus licheniformis*, was originally discovered by the team in 2010, while they were researching ways to remove slime and other fouling organisms from the hulls of ships. They discovered that some seaweeds are actually covered in bacteria. The bacteria not only produce powerful adhesives to stick themselves to surfaces, but they also produce an “anti-glue” that can break up sticky molecules, to allow them to detach.

Similar glues are also present on dirty clothing, where they bind dirt and odours to the fabric. The same bacterial enzyme can break down these glues, and can therefore be used to keep clothes clean as well. **According to Dr Burgess:** “This is a wonderful example of borrowing a cleaning idea

from Mother Nature. By studying how a seaweed keeps itself clean, we can now keep our own socks clean and fresh, while at the same time protecting our environment.”

Clothes need to be cleaned, but there is growing awareness that the cleaning process — from its use of water and energy to its production of micro-plastics — is quite harmful to the environment. At Springwise, we have seen a number of innovations that aim to make washing eco-friendly. These include a [laundry service that uses reclaimed water](#) and a [washing machine filter](#) that captures micro-plastics.

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Takeaway:

The enzyme is not only less harmful to the environment than traditional detergents, but it also appears to work equally well at both high and low temperatures. This could allow further savings in energy, by allowing clothes to be cleaned in cold water. The research led by the Newcastle team is not only promising for its potential to develop a more environmentally-friendly detergent but for its collaboration with cleaning products manufacturer Proctor & Gamble. The collaboration could help deliver a product to market faster than would otherwise be expected.