Tekst 10

Panda Poop Power

1 GIANT PANDAS are well known for being rather different from other bears. Having a diet composed almost entirely of bamboo is one of the things that sets them apart. It is also what attracted the interest of Ashli Brown of Mississippi State University, in a search for more efficient ways to make biofuel.

2 Most of the nutrients found in bamboo are locked away in tough substances known as cellulose and lignin. Liberating those nutrients is an energy-intensive process that involves high temperatures and extreme pressures. **32**, it is the cost of doing so that makes producing biofuel out of cellulose- and lignin-rich materials, like discarded corn (maize) cobs and husks, less financially viable than generating biofuel directly from more readily digestible corn kernels. The kernels, however, can be used to feed people whereas the cobs and husks cannot. So a process that is able efficiently to turn what is **33** product into fuel could have great potential.

3 Given their **34**, Dr Brown knew that giant pandas had to have microbes in their gut that were strong enough to break cellulose and lignin down. If it was possible to identify those microbes and find the enzymes within them they might be used to improve biofuel production. So, Dr Brown and her colleagues got to work analysing piles of panda faeces to find the microbes that are particularly adept at breaking down the bamboo material.

4 The team identified 17 microbes with the ability to digest cellulose and six that looked like good candidates for digesting lignin. These microbes were then tested in the laboratory and they were found to be capable of transforming 65.4% of the tough materials they were given into the sorts of energy-rich sugars that are readily fermented into bioethanol or biodiesel. Considering that most cellulose- and lignin-based materials end up as compost, or worse, in landfills, the ability to convert such a large percentage of them into potential biofuel products is **35**. Dr Brown, though, is quick to point out that optimising the performance of the enzymes employed by the microbes so that they can be used commercially is going to be a long and hard job. But still a job that could be well worth the effort.

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