Heating soya proteins produces juicier and healthier vegetarian meat

The food industry uses a standard method to extract proteins from soya beans. PhD student Yu Peng altered this industrial process so that the proteins form vegetarian 'meat' that is juicier and healthier.

The consumption of meat substitutes has increased since the 1990s and with it the demand for soya proteins, the key ingredient of these products. But standard soya proteins are not equally suited for all applications. 'Each end product, such as vegan cheese, burgers and yoghurt, requires soya proteins with very different properties,' Peng explains. The PhD candidate hopes that altering these properties will enable the industry to make soya proteins with just the right properties for the product they are used in.
Peng added a step at the end of the industrial process for making soya protein to increase its juiciness. She heated the purified proteins to 70 degrees Celsius. This alters the properties so that the substance retains more water, like a sponge, and less water runs out of the vegetarian meat when it is fried. 'This heating stage is a promising way to make meat substitutes more meat-like,' says Peng.

Strong bones

Meat substitutes and other plant-based foodstuffs contain little calcium, which is essential for healthy teeth and bones. This is why vegans often don't get enough calcium from their diet. In the standard process, sodium is added to make the proteins pH-neutral and improve their solubility in water. Peng discovered the same result could be achieved by adding calcium hydroxide, which increases the calcium content of the soya protein. Does that make extra calcium in the soya protein the solution for vegans? 'This new extra step ensures that each gram of protein extract contains six milligrams of calcium', Peng explains. 'That's still not enough, since the daily recommended dosage is nearly one gram. But it is a step in the right direction.' NVTWH

> **Heating enables the product to retain more water, like a sponge**