

Feta cheese made from raw milk has natural anti-food-poisoning properties

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Eating Feta cheese made from raw milk in small seaside tavernas when you are on holiday in Greece could be a good way to combat food poisoning, according to researchers speaking today at the Society for General Microbiology's 162nd meeting being held this week at the Edinburgh International Conference Centre.

“We were able to isolate lactic acid bacteria found in raw sheep milk from small farms in Macedonia, northern Greece. Several of these friendly bacteria naturally produce antibiotics that killed off dangerous food-poisoning bacteria like *Listeria*,” says Panagiotis Chanos, a researcher from the University of Lincoln. “Interestingly, we identified these friendly bacteria as enterococci, more commonly recognised as virulent and/or antibiotic resistant bacteria in hospitals. We found some strains could produce up to three different natural substances to fight different food pathogens.”

The unique taste of many local cheeses, especially from Greece and other parts of the Mediterranean, is mainly due to the enterococcal bacteria they contain. Apart from their sometimes sinister role when antibiotic resistant strains cause hospital infections, enterococci are important in the food flavouring and manufacturing industries.

Listeria is one of the most dangerous food poisoning bacteria because it can survive in places and conditions that other bacteria cannot. It can be found in foods made from animal products as a result of poor heat processing or mishandling, which causes post-production contamination,

for example when butchers or retailers fail to wash their hands between touching cooked pies and raw meats.

“We hope that this work will lead to ways of fighting foodborne pathogens, using the naturally produced compounds called bacteriocins made by other bacteria,” says Mr Chanos. “We discovered that all the useful strains of bacteria that produced bacteriocins were able to grow in extreme conditions resembling those commonly found in foods, including the low temperatures found in our refrigerators and the salty conditions found in some cheese.”

Instead of putting additives and synthetic preservatives in foods, the scientists hope they can harness the properties of the useful bacteria to use them as micro-allies against disease-causing bacteria like *Listeria*.

Listeria is particularly dangerous, causing food poisoning or even death in vulnerable people like children and the elderly, and in pregnant women where it commonly triggers miscarriages. Patients on medication for cancer or HIV, or with heart, liver or kidney transplants are also particularly at risk as their immune systems are weakened.

“It is known that enterococci in general may have the same properties as good gut bacteria. We hope our bacteria possess these properties too, so they could colonise our small intestine and fight *Listeria* from within the body,” says Panagiotis Chanos. “If we can ensure the safety of these useful bacteria, they could guard us humans by killing foodborne pathogens,”

The researchers hope to minimise the use of ‘not-so-friendly’ synthetic preservatives in foods by replacing them with naturally produced bacteriocins, which may open up new opportunities for organic food production.

Source: Society for General Microbiology

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