

Using tempeh for an upset stomach

October 15 2010, By Hans Wolkers

Tempeh, the eastern soya product well liked by vegetarians, could also be good for preventing the runs. It stops pathogens from nestling in the intestines.

Tempeh is hardly found on menu cards in restaurants. It is in fact a chunk of moldy fermented soya beans. The mold breaks down big molecules, such as proteins and sugars. In the process, the taste and texture change; the product becomes softer and acquires a somewhat nutty flavor. But tempeh could also be a preventive agent against the runs, Petra Roubos stated at her graduation from the Laboratory of Food Microbiology of Wageningen University on 8 October.

"It has been known for some time that this bean cake can reduce [diarrhea](#), for babies as well as for young pigs," says the PhD holder.

The big question was how tempeh reduces the chance of getting diarrhea. To shed light on the workings of this anti-diarrhea effect, the PhD student put together a test system of cultured intestinal cells.

"Tempeh did not seem to have any effect on the intestinal cells. We also couldn't demonstrate any anti-bacteria effects from tempeh in this way," says Roubos. Subsequently, she measured the binding of [pathogenic bacteria](#) - which appear before the infection - on the cells of the intestinal walls, and found that tempeh could lessen that.

Shackle on the foot

How tempeh can hinder pathogenic bacteria from binding to the

intestinal cells is not entirely clear yet, but Roubos has a hunch.

"The active substance which has the anti-runs effect could have clung on to these bacteria, and literally becomes a shackle on the foot of this micro-organism," explains Roubos. "Another possibility is that the substance somehow breaks down or blocks the [bacteria](#) which bind to the [intestinal cells](#)."

Roubos first established that this useful substance is not found in the mold, but in the tempeh itself.

Roubos: "Grains with the same mold as that in tempeh did not have any anti-diarrhea effect. It therefore has to be a fermented form of the soya."

It appears that sugar chains with arabinose, found in the cell walls of soya, are the ones doing the job. The anti-diarrhea effect stops when these cell wall units are broken down, says Roubos.

Provided by Wageningen University

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