



How to make sure that beneficial probiotic bacteria reach consumers in an active way?

Yoghurt is often used as a carrier product for beneficial probiotic bacteria. Yoghurt, as such, has a positive health image among consumers and is part of everyday diet in most European countries. However, making yoghurt a truly probiotic product is a challenging task.

Firstly, the probiotic bacteria have to be viable in the product, so that the consumers can benefit from the health effects. These bacteria need to survive several steps, including processing treatments, storage conditions and finally having tolerance for the conditions in human body. The probiotic bacteria need to reach the right spot in human body, especially the gut, to be effective. The EU-funded PROTECH-project explores various factors that influence the viability and stability of probiotic bacteria through these several steps using yoghurt as one of the model products.

In yoghurt, acidity of the product (pH), storage temperature and storage time do influence the viability of probiotic bacteria. The storage temperature being at +4°C, thus reflecting refrigerator conditions, was the most important factor in keeping the probiotic bifidobacteria viable during the four-week storage time. The viability was to some extent improved if the acidity increased. Most damaging for probiotic bacteria was storing the products at room temperature. Therefore keeping the probiotic yoghurts properly chilled during storage is a key issue for their ability to provide health benefits.

After reaching the consumer in prime condition, probiotic bacteria have to encounter the stressful acidic conditions and bile solutions in the human body. There are several strains of probiotic bacteria and the ability of these strains to live through different stress factors vary. Therefore the current research tries to find out how different technological factors (like freezing or heating treatments) can affect the viability of probiotics and whether these treatments have a later impact on the survival rate of bacteria. Sometimes a suitable amount of stress makes the bacteria more enduring towards other stressful events. The probiotic bacteria can also be protected by combining them with growth-promoting substances. These so-called prebiotics can specifically support the survival of certain strains, but finding the suitable pro- and prebiotic pairs requires further studies.

The research carried out in PROTECH-project will bring forward new knowledge on how well the probiotic bacteria in the product have survived. The aim is to produce a model that can maximise the viability of probiotics through processing. These results can be used to give consumers better guarantee that the probiotic products they buy actually deliver the health benefits they promise.

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