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Microbiology in practice: Are there really any live and active bacteria cultures in yogurts?

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Yogurts are a common part of our everyday diet. In addition to their scrumptious taste, they have another substantial advantage - most of yogurts are proclaimed to contain probiotic bacteria cultures. Among the most common bacteria present in yogurts belong so called lactic acid bacteria, e.g. genus Lactobacillus and Bifidobacterium, which are well known for their positive influence on the intestinal microflora function and even for their potential antitumor activity (Gomes & Malcata 1999).
As students are usually very interested in practical aspects of curriculum, the intestinal microflora as well as healthy nutrition are mentioned within the block of somatology, while the human digestive tract is studied. Possibilities how to restore the intestinal microflora damaged after taking antibiotics and how to make it stable are discussed, e.g. yogurt consumption. Since recently rumours have been circulating that yogurts actually do not contain any live and active bacteria cultures, students were wondering if consuming yogurts is meaningful or not taking into consideration an effort to strengthen the intestinal microflora.
Thus, students of the next to last class of the high school apply their basic knowledge of microbiology in practice and carry out an experiment to test the presence of probiotic bacteria in yogurts by inoculating the agar plates with yogurt cultures of bacteria and cultivating them. Main aims are to find out if there really are live and active bacteria cultures in yogurts and to compare the information on bacteria content shown at plastic cups of tested yogurts with obtained data.
The practical experiment is divided into several steps. First of all, the students search for and study various information sources on the theme and further perform a screening of yogurt supply in both supermarkets and specialized health food shops. After discussing a list of yogurts appropriate for the test and getting selected items, students devote their time to the experiment itself. At the very outset of the experiment samples with hidden identity are prepared so that students do not know which yogurt they are testing. We take this precaution to make sure that results will not be skewed because of positive or negative expectation due to the information shown on a label.
After inoculating various kinds of yogurts with bacteria cultures on the agar plates (following the principle of multiple replications), the experiment proceeds in cooperation with microbiologists from the Institute of Soil Biology, who give the students a hand with the determination of cultivated bacteria genera. Hence, the students are able to state not only the quantity and viability of present probiotic bacteria, but also the specific present genera of probiotic bacteria as well as other contaminants (moulds, yeasts, other bacteria).
Processing obtained data, making graphs, elaborating research reports as well as giving presentations of results is commonplace. However, recently we have been considering another final step of this project, consisting in writing a formal letter to producers of tested yogurts for the purpose of informing them about our results.

References

Gomes A. M. P. & Malcata F. X. (1999): Bifidobacterium spp. and Lactobacillus acidophilus: biological, biochemical, technological and therapeutical properties relevant for use as probiotics. Trends Food Sci Technol. 10: 139-157.