

Selection of Potential Starter Using Their Transcription Level

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Abstract : Fermented dairy food quality is mainly determined by the sensory perception and influenced by many factors. Today, starter cultures for fermented foods are being developed to have a constant quality in these foods. *Streptococcus thermophilus* is one of the main species of most a starter cultures of yogurt fermentation. This species produces lactate by lactose fermentation from pyruvate. On the other hand, a small amount of pyruvate can alternatively be converted to various typical yoghurt flavor compounds such as diacetyl, acetoin, acetaldehyde, or acetic acid, for which the activity of three genes are shown to be especially important; *ldh*, *nox* and *als*. Up to date, commercially produced yoghurts have not yet met the desired aromatic properties that Turkish consumers find in traditional homemade yoghurts. Therefore, it is important to select starters carrying favorable metabolic characteristics from natural isolates. In this study, 30 strains of *Str. Thermophilus* were isolated from traditional Turkish yoghurts obtained from different regions of the country. In these strains, transcriptional levels of *ldh*, *nox* and *als* genes were determined via a newly developed qPCR protocol, which is a more reliable and precision method for analyzing the quantitative and qualitative expression of specific genes in different experimental conditions or in different organisms compared to conventional analytical methods. Additionally, the metabolite production potentials of the isolates were measured. Of all the strains examined, 60% were found to carry the metabolite production potential and the gene activity which appeared to be suitable to be used as a starter culture. Probable starter cultures were determined according to real-time PCR results.

Keywords : gene expression, RT-PCR, starter culture, *Streptococcus thermophilus*

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