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Molecular identification of bacteria on grapes and in must from Small Carpathian wine-producing region (Slovakia)

Tomas Kuchta[1], Domenico Pangallo[2], Zuzana Godalova[1], Andrea Puskarova[2], Mária Buckova[2], Katarína Zenisova[1] and **Lucia Krakova[2]**
[1]National Agricultural and Food Centre, Slovakia
[2]Slovak Academy of Sciences, Slovakia

Quality of wine is largely dependent on the quality of grapes and on microflora which is active during wine making. Besides yeasts which are responsible for the primary fermentation, bacteria also influence the quality of wine in a positive or in a negative way mainly by formation or transformation of aroma-active compounds. We studied prokaryotic consortia on grapes and in musts of Gruner Veltliner and Blaufrankisch from the Small Carpathian wine-producing region (Slovakia) which is located in the northeast of Central Europe. The study involved both the culture-based approach using elective media and the culture-independent approach using direct DNA extraction. The molecular methods used were internal transcribed spacer-directed polymerase chain reaction (ITS PCR), 16S rDNA-directed PCR combined with denaturing gradient gel electrophoresis (DGGE) and Sanger DNA sequencing. The microflora identified on grapes was found to involve *Lactobacillus sakei, Leuconostoc mesenteroides, Gluconobacter* spp. and others for Gruner Veltliner and *Lactobacillus plantarum, Leuconostoc mesenteroides, Gluconobacter* spp. and others for Blaufrankisch. The microflora identified in musts involved *Lactobacillus plantarum, Lactobacillus brevis, Lactobacillus rossiae, Bacillus simplex, Leuconostoc fructosus, Gluconobacter albidus, Gluconobacter cerinus, Kozakia baliensis, Enterococcus durans, Acetobacter aceti, Tatumella* spp. and others for Gruner Veltliner and *Lactobacillus plantarum, Lactobacillus brevis, Lactobacillus hilgardii, Leuconostoc mesenteroides, Leuconostoc gasicomitatum, Gluconobacter oxydans, Gluconobacter cerinus, Fructobacillus fructosus, Oenococcus oeni, Asaia lannaensis, Acetobacter malorum, Acetobacter cibinongensis* and others for Blaufrankisch. A selection of the isolated strains will undergo detailed characterization regarding their potential to improve the quality of regional wines.

Biography

Tomas Kuchta is has completed his MSc in Biochemitsry and PhD in Microbiology and Post doctorate in Food Technology. He is a leading Scientist in the Food Research Institute, National Agricultural and Food Centre, Bratislava, Slovakia. He has published more than 80 papers in scientific journals and is serving as Chief Editor of the *Journal of Food and Nutrition Research*.

kuchta@vup.sk

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