THE ACETIC ACID BACTERIA OF TRADITIONAL BALSAMIC VINEGAR

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Aims: The Traditional Balsamic Vinegar is a special vinegar made from cooked must with a very high sugar concentration. Thus it is reasonable to hypothesize that the bacteria species could be different from the species that occur in other vinegars.
Methods and results: Forty-eight strains of acetic acid bacteria were isolated from "barrels" of Traditional Balsamic Vinegar. Since a large percentage of them were not able to grow at the 30% of glucose, we can assume that the greatest hurdle to the growth of acetic acid bacteria in Traditional Balsamic Vinegar is high sugar concentration. 16S-23S-5S rDNA PCR/RFLP analysis by *Rsa*I endonuclease enzyme was performed on both the type strains and the isolated strains. On the basis of the results, 32 strains belong to the *Gluconacetobacter xylinus* species, 2 strains to *Acetobacter pasteurianus* and one to *Acetobacter aceti*.
Conclusion: Gluconacetobacter xylinus is the main species of Traditional Balsamic Vinegar and the greatest hurdle to the growth of acetic acid bacteria is high sugar concentration.
Significance and impact of the study: The results suggest new technological approach to vinegar production.
Key words: acetic acid bacteria, *Gluconacetobacter xylinus*, glucose tolerance, vinegar.