Computer-aided comparison of protein electrophoretic patterns for grouping and identification of heterotrophic bacteria from mineral water

A.C. Ferreira, P.V. Morais, C. Gomes and M.S. da Costa

Laboratório de Microbiologia, Departamento de Bioquímica, Universidade de Coimbra, Coimbra, Portugal

5443/07/95: received 28 July 1995, revised 16 October 1995 and accepted 19 October 1995

A.C. FERREIRA, P.V. MORAIS, C. GOMES AND M.S. DA COSTA. 1996. The microflora of a natural mineral water was studied immediately after bottling (T0) and after 7 d storage (T7) during 6 months, and isolates were clustered by SDS-PAGE of whole-cell protein profiles. Isolates from each cluster were further characterized by API 20NE, fatty acid composition and quinone profiles. The numerical analysis of the electrophoregrams of all bacteria isolated from the mineral water formed 15 clusters and five unclustered strains. Except for five minor clusters, all clusters were composed of strains isolated over several months. The numerical analysis of the electrophoregrams of bacteria isolated immediately after bottling formed 15 clusters while after 7 d storage only four of these populations could be isolated, indicating that populations present in the mineral water were stable and that changes occurring after bottling probably resulted from a selection process. Only one unclustered strain was identified simultaneously by all the systems, as *Sphingomonas paucimobilis*. The monitoring of the aquifer and the bottling system, and the construction of a large database with bacteria of the autochthonous flora allows the detection of alterations in the aquifer by changes in the microflora.