

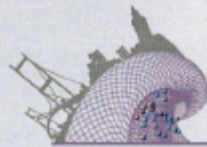
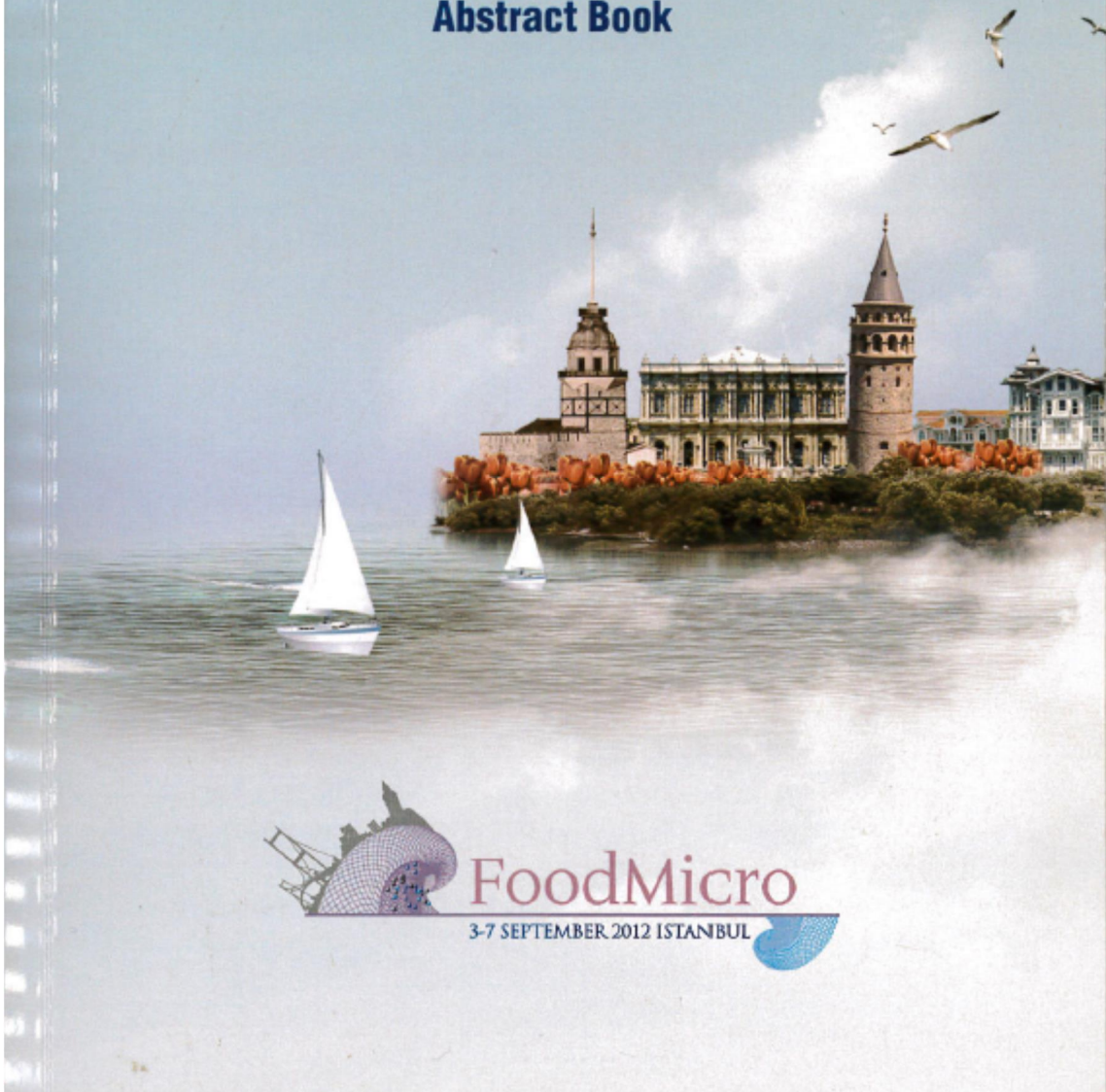


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## Genomic heterogeneity in *Moorella thermoacetica* / *thermoautotrophica* and *Geobacillus stearothermophilus* as revealed by M13-PCR typing

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Two thermophilic bacteria, the anaerobe *Moorella thermoacetica* / *thermoautotrophica* and the aerobic *Geobacillus stearothermophilus*, are responsible for 75% of canned food spoilage in stability test controls. Both species form Highly Heat Resistant Spores (HHRS) which can withstand the sterilization process. These bacteria are largely present in the environment and consequently contaminate vegetable processing lines. Very few studies investigated the variability of physiological properties within the two species *G. stearothermophilus* and *M. thermoacetica* / *thermoautotrophica* and none the genomic variability. This information is necessary better understand the ecology of these species and define strategy for control in canned foods. We aimed to evaluate intra-species diversity by typing isolates of these two thermophilic species. A M13-PCR based method was chosen and applied for typing the two species. A total of 140 and 94 isolates of *G. stearothermophilus* and *M. thermoacetica* / *thermoautotrophica*, respectively, collected from canned foods non microbiologically stable at 55°C over a period of ten years and 5 references strains, were submitted to typing analysis. Isolates were classified in different groups according to their electrophoretic profiles obtained after amplification of the M13 bacteriophage sequence and analysis with the Biogene software (Bio Profil, V99.04). Our results showed an important intraspecies diversity with this method. 19 groups were obtained for each of the species *G. stearothermophilus* and *M. thermoacetica* / *thermoautotrophica*. In the selected conditions i.e. with a confidence interval of 4% and a similarity value of 77%, 87% of *G. stearothermophilus* isolates and 78% of *M. thermoacetica* / *thermoautotrophica* isolates belonged respectively to 10 and 6 main groups. In each group and between groups, no correlation can be done between strains and the nature of food product or the canned food manufacture or the year of isolation. The phenotypes of isolates that belong to different genetic groups will be further characterized in order to estimate the variability range of several key properties (growth temperature and pH, sporulation and germination abilities and spore resistance).