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PaperTitle **Changes in Phenotypic Characteristics of Acid-Tolerant Food-Associated Bacteria**

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ABSTRACT

The human gastric fluid plays a very important role in first-line defense against enteric pathogens present in food by killing or inactivating these organisms before they enter the intestinal tract. Yet, the question arises: "Why is food poisoning such a common infectious disease?". It is necessary to determine if these bacteria ingested together with food, are acid-tolerant, or if infection occurs before they reach the stomach. Various foodstuffs, especially processed food, sauces and juices have a very low pH and bacteria have been reported to survive such products and acid substances, such as organic acids are common food preservatives, which also lowers the pH of processed foods, and concern has been expressed that decontamination with organic acids could result in the emergence of acid tolerant food-borne pathogens that may overcome the protective barrier of the gastric stomach.

Objectives of the study were to determine the prevalence of acid tolerance in various food-borne bacteria and to investigate evolving changes in the phenotypic characteristics as a result of acid tolerance developing, especially in protein production.

Bacterial isolates and standard strains were screened for acid-tolerance, by determining viable counts immediately before acid challenge and at various times after challenge. Acid tolerance was induced in susceptible strains to monitor changes in protein production by comparing protein profiles by SDS-PAGE. Various changes in protein profiles in acid-tolerant strains were detected. Alterations in membrane proteins may be implicated in the development of acid tolerance, but may also be the result of acid tolerance and the possibility of problems in identification, as some of the *Chryseobacterium* isolates appeared to lose the ability to produce the characteristic yellow pigment protein.