Summary

Microbial safety and quality of foods are determined by the kinds and number of microorganisms occurring in them. Food-borne microorganisms may cause spoilage of foods, or after ingestion may cause disease of the consumer by infection or intoxication. The primary aim of food microbiology is to use testing methods suitable to detect, enumerate and identify microorganisms in a food product. Enumeration of viable cells can be achieved by taking a sample of food, bringing it into a homogenous suspension and inoculating solid or liquid growth media to obtain colony counts or most probable number of cells. Detection is made with the use of specific and differential growth media in the case of suspected pathogens, generally followed with the identification of species and typing of specific strains. Conventional culturing methods are slow and material and labor intensive. Modified versions facilitate obtaining results rapidly. Non-traditional testing methods relying on physical, chemical, immunological or molecular principles have been introduced to supplement or replace conventional testing methods. Rapid techniques are particularly useful in modern procedures of quality management and control systems, such as HACCP (Hazard analysis and critical control points), to ensure the microbial quality and safety of foods in a preventive way that cannot be attained by end-product testing.