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Nota di contenuto	Contents; Current Books of Interest; Contributors; Introduction; 1: Microbial Cytometry: What It Was, Is, and May Be; Introduction; Tasks in microbial cytometry: motives and methods; From microscopy to cytometry: more than meets the eye; Intrinsic parameters; Extrinsic parameters; Microscopy versus cytometry: the eyes do not have it; Cytometric options: thinking outside and inside the box; 2: Non-destructive On-chip Imaging Cytometry Assay for Constructive On-chip Cellomics Studies; Introduction; A fully automated on-chip imaging flow cytometry system Applications of on-chip imaging cytometry technologiesSummary; 3: Application of Flow Cytometry to Environmental Biotechnology; Introduction; Application to drinking water quality; Application to wastewater treatments; Application to solid waste treatments; Bacterial viability in soils and sediments; Future trends; 4: Flow Cytometry and Microbial Community Fingerprinting; What are natural communities?; Community structure analysis using flow cytometry; Community composition analysis using fingerprinting techniques Combination of community fingerprinting and single cell analysis by cell sorting5: Application of Flow Cytometry to the Detection of Pathogenic Bacteria; Microbial pathogenesis; Advantages of flow cytometry for pathogen detection; Challenges in pathogen detection;

Instrument set up; Sample preparation; Immunolabelling; Fluorescence in situ hybridisation (FISH); Green fluorescent protein (GFP); Quantum dot labelling; FCM analysis of food samples; FCM analysis of clinical samples; Physiology of microbial pathogens and FCM analysis; Cell separation/cell sorting; Conclusion
6: The Use of Flow Cytometry to Study Sporeforming BacteriaIntroduction; The importance of spore formers; Spore formers and flow cytometry: a review of past studies; Potential applications of flow cytometry to the study of spore formers; Conclusions; 7: Flow Cytometry of Yeasts and Other Fungi; Introduction; Flow cytometry and FACS to investigate cell and molecular biology; Medical applications of FCM; FCM for bioprocess monitoring and development; Cell engineering and screening using FACS; Molecular screening methods using yeast and FACS
New methods and technology related to, and developed from, FCM and FACSConclusion; 8: The Application of Flow Cytometry to the Study of Lactic Acid Bacteria Fermentations; Introduction; Traditional methods used to monitor LAB and a comparison with flow cytometry methodology; Flow cytometry (FCM); Specific examples of flow cytometry and LAB analysis; Starter performance; Cheese manufacture and FCM applications; Probiotic bacteria; Sample preparation; Conclusion; 9: Flow Cytometry for Rapid Microbiological Analysis of Drinking Water: From Science to Practice - An Unfinished Story
Setting the scene

Sommario/riassunto

Flow cytometry is a powerful technique for the rapid analysis of single cells in a mixture. In microbiology, flow cytometry permits the reliable and rapid detection of single or multiple microbes and can provide information about their distribution within cell populations. Flow cytometry may also lead to a faster means of viability counting of microorganisms while, at the same time, enabling a better understanding of all bacterial cells within a given population. Specially adapted commercial cytometers for microbial detection are being developed. In this text, renowned contributors have brough