

Measurement techniques to resolve and control population dynamics of mixed-culture processes.

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Abstract

Microbial mixed cultures are gaining increasing attention as biotechnological production systems, since they offer a large but untapped potential for future bioprocesses. Effects of secondary metabolite induction and advantages of labor division for the degradation of complex substrates offer new possibilities for process intensification. However, mixed cultures are highly complex, and, consequently, many biotic and abiotic parameters are required to be identified, characterized, and ideally controlled to establish a stable bioprocess. In this review, we discuss the advantages and disadvantages of existing measurement techniques for identifying, characterizing, monitoring, and controlling mixed cultures and highlight promising examples. Moreover, existing challenges and emerging technologies are discussed, which lay the foundation for novel analytical workflows to monitor mixed-culture bioprocesses.

Involved units

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