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## Green Sustainable Process for Chemical and Environmental Engineering and Science

Microbially-Derived Biosurfactants for Improving Sustainability in Industry

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### Chapter 19 - Mass production and factors affecting biosurfactant productivity using bioreactors

Kanwal <sup>a, b</sup>, Hanaa Ali Hussein <sup>a, c</sup>, Khalid Mohammed Khan <sup>b, d</sup>, Mohd Azmuddin Abdullah <sup>a</sup>  

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#### Abstract

Biosurfactants are molecules derived from microorganisms, possessing both hydrophilic and hydrophobic ends. Because of these distinct characteristics, biosurfactants have attracted great attention for wide use in industrial and commercial applications. The advantages of biosurfactants over chemical surfactants include lesser toxicity, and environmental, and ecofriendliness. However, despite the vast potential, there have been limited industrial productions of biosurfactants, as there are challenges to meet the economic expectation. In this review, the diverse types of biosurfactants, the microbial sources and origin, industrial applications, and the mass production in the bioreactor systems and operations are discussed. Various factors and parameters influencing the yield, productivity, and quality, including the high-producing strains, nutritional and environmental factors, bioreactor configuration, mode of operation, and parameter optimization, are elaborated.

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