

Title: Biotechnological tools in microbial vitamins and carotenoids production

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Abstract: In recent years, the use of [carotenoids](#) and vitamins in the food, flavoring, pharmaceutical, and feed sectors has led to a surge in demand for these nutrients. Nevertheless, these compounds can be expensive and technically challenging to extract and synthesize. Recent decades have seen an increase in the search for natural [carotenoids](#) and vitamins due to the increased interest in greener and more sustainable industrial processing. In particular, the microbial production of [carotenoids](#) and vitamins offers a cost-effective and environmentally friendly alternative to chemical synthesis or direct extraction from plants. Consequently, it has been proposed that bioprocessing technologies can boost production yields of [carotenoids](#) and vitamins as well as increase the efficiency of currently employed production techniques. Therefore, this chapter gives a summary of the most current biotechnological advancements in the microbial synthesis of carotenoids and vitamins. This chapter aims to enhance knowledge and understanding of the most suitable and cost-effective approaches for the biotechnological synthesis of vitamins and carotenoids.

Keywords: Carotenoids Vitamins Microbial synthesis Bioprocessing technology Biotechnological advan

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