

The Changing Dynamics of Functional Foods: Prebiotics, Probiotics, and Postbiotics

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Abstract : The widespread use of antibiotics has brought about the rise of multidrug resistance and is often accompanied by disturbances in gut flora. In order to counteract the negative effects of antibiotics, probiotics have emerged as a promising solution. However, as new probiotics are being incorporated into our health regimen, the attention has also turned towards their counterparts - prebiotics, postbiotics and parabiotics. These intricate relationships among gut-biotics and their respective roles in promoting overall health benefits must be thoroughly examined and understood. Prebiotic dietary fibers are selectively fermented by probiotics, which facilitates their colonization in the gut environment. The growth of probiotics leads to the production of fermentation by-products (postbiotics) that influence the proliferation of harmful bacteria through a decrease in pH levels and the production of inhibitory bacteriocins. Following the completion of their life cycle, the remnants of beneficial gut microbes, known as parabiotics, such as exopolysaccharides and cell wall glycoproteins, possess the remarkable ability to inhibit the adhesion and formation of harmful biofilms on the intestinal lining. These advantageous effects are not confined solely to the gut; rather, a systemic response is observed across different axes connecting the gut with various organs. Therefore, it becomes crucial to unravel the intricate interplay between these components in order to understand the significance of probiotics. This review delves into recent advancements in our understanding of these gut-biotics, highlighting their potential roles in offering anti-oxidant, anti-inflammatory, anti-neoplastic, anti-lipidemic, and anti-hyperglycemic benefits.

Keywords : probiotics, postbiotics, prebiotics, functional foods, synbiotics

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