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A Review on the Prebiotics to Thrive the Growth of *Bifidobacteria* in Human's Gut

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Structured Abstract

Background: *Bifidobacteria* is included among the seven core genera of microbial organisms that are commonly used in the probiotics production and its presence in the human gut is essential as it can positively impact the health performance of the human body be it in the aspects of physiologically and immunologically. However, its composition in the gut may be altered by the host genetics factors, age and environmental factors such as diet which sometimes is unavoidable. Therefore, it is important to select which prebiotics provide the best option to maintain and thrive the growth of *Bifidobacteria* in the human gut. The aim of this review is to collect journals and thesis related to prebiotics that thrive the growth of *Bifidobacteria* which provide health-promoting benefits to humans.

Methods: This study involve reviewing published articles in reliable publication venues about *Bifidobacteria* and the prebiotics that could thrive their growth in the gut of human. All the data were analysed and compared to select which prebiotics provide the best option to thrive the growth of *Bifidobacteria* without alarming the gut ecosystem.

Results: As a result, a comprehensive dataset has been gathered and compiled. There are 11 types of prebiotics identified that has been analysed previously by the researchers meticulously through both in-vitro and in-vivo studies to examine their fermentation by the *Bifidobacteria*. The prebiotics includes fructooligosaccharide, inulin, galactooligosaccharide, xylooligosaccharide, agarooligosaccharide, resistant starch, arabinoglycan, beta-glucan, chitin-glucan, polyphenol and a mixed prebiotic.

Conclusion: This provides a valuable insight into the prebiotics that possibly help to maintain the prevalence of the *Bifidobacteria* in the gut ecosystem hence having enough of the microbe to maintain overall body health without disturbing the existing gut ecosystem. Overall, by understanding the impacts of particular prebiotics on the growth of *Bifidobacteria*, a specialized dietary strategy can be planned to provide suitable and enough prebiotics to enhance the composition of *Bifidobacteria* in the gut.

Keywords: *Bifidobacteria*, prebiotics, probiotics, gut health.

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