A short review on the importance of probiotic and prebiotic.

Srestha Mukherjee*

Department of Nutrition, Vellore Institute of Technology, Vellore, Tamil Nadu, India

Accepted on 20 September, 2021

DESCRIPTION

Probiotics are becoming increasingly popular due to their health benefit. Probiotics can be termed as the use of viable bacterial species that enhance the gut flora. Probiotics are live microbial feed supplements that maintains the microbiome in the gut. Prebiotics should be consumed in adequate amount in the diet [1]. Prebiotics cannot be digested by the body and stimulates the growth of the microbes selectively in the intestine. They are not absorbed or hydrolyzed by the enzymes present in the body but can act as a substrate for the survival of the probiotics in the gut. Before understanding the importance of prebiotics and probiotics it is imperative to understand how food affects our intestinal health. The food sources high in sugar and fat can affect the gut flora and leads to insulin resistance. Along with that high body mass index, high cholesterol rich diet and lack of fiber in diet can have a detrimental effect on the gut bacteria. Hence it is of paramount importance to include both prebiotics and probiotics in the diet [2].

The importance of prebiotics, probiotics have been a subject of constant debate since decades due to their significant health benefits The microbes which can act as a probiotic are as follows: *L.acidophilus, L.casei, L crispatus,L gallinarium,L gasseri, L johnsonii, B longum,B brevii, B bifidum* etc. Gram positive lactic acid bacteria serves as probiotic as they are able to produce lactic acid at the end of carbohydrate metabolism [3]. The desirable probiotic properties are as follows: Probiotics should be active at a low dosage, persistent in colon, varying viscosity and maintain the gut microflora, antimicrobial activity against pathogenic bacteria, acid and bile tolerance, adhesion to the mucosal epithelium of intestine and colonization. The mechanism by which probiotics act is still unclear yet it is believed that they lower the pH of the gut and produce short chain fatty acids, having a significant role in immunomodulation [4]. There are significant evidences that states that probiotics improve the immune response of an individual mainly the acquired and innate immune response. Short chain polymeric carbohydrate, fructans, Starch and other related oligosaccharides, inulin can act as prebiotics. The health benefits of probiotics and probiotics are as follows:

- Weight loss
- Immunomodulation
- Cancer prevention
- Enhanced antimicrobial activity
- Enhanced mineral bio availability
- Can prevent infectious diarrhea
- Prevent constipation.

Sources of probiotic and prebiotics

Probiotics: Fermented milk, cheese, butter milk, Nondairy food sources such as soy, nutrition bars, juices can act as probiotic food sources etc.

Prebiotics: Apples, Artichokes, Asparagus, Bananas, Barley, Berries, Chicory, Cocoa, inulin etc., act as prebiotics [5].

Challenges faced

- Recognition of strain specificity
- When prebiotic and probiotic formulation are produced they usually undergo less scrutiny and its dynamic and complex
- A specific delivery mechanism has to be produced
- Shelf life has to be enhanced

Conclusion

Prebiotics and probiotics provide a vast array of health benefits by enhancing the gut microflora, providing cure for lactose intolerance, allergy, antibiotics associated diarrhea, irritable bowel disorder. These products are becoming increasingly popular and attracts a significant proportion of consumers attraction. Dairy products such as curd, cheese are the most popular ones. Many biotechnological advances have been made to enhance the production of these products but the efficacy of these products are yet to be discerned which is at a very incipient stage. For this reason developing prebiotic and probiotic products and studying the interactions are of utmost important so that low cost beneficial products can be designed.

References

1. Saad N, Delattre C, Urdaci M, et al. An overview of the last advances in probiotic and prebiotic field. LWT Food Sci Technol. 2013;50:1-6.
2. Cremon C, Barbaro MR, Ventura M, et al. Pre and probiotic overview. Curr Opin Pharmacol. 2018;43:87-92.
3. Ziemer CJ, Gibson GR. An overview of probiotics, prebiotics and synbiotics in the functional food concept: Perspectives and future strategies. Int Dairy J. 1998;8:473-479.
4. Sekhon BS, Jairath S. Prebiotics, probiotics and synbiotics: an overview. J Pharma Edu Res. 2010.
5. Ng QX, Loke W, Venkatanarayanan N, et al. A systematic review of the role of prebiotics and probiotics in autism spectrum disorders. Medicina. 2019;55:124-129.

***Correspondence to**

Dr. Srestha Mukherjee*

Department of Nutrition,

Vellore Institute of Technology,

Vellore,

Tamil Nadu,

India

E-mail: mukherjeesrestha337@gmail.com