Impact of probiotics on central nervous system: A systematic review

Utkalendu Suvendusekhar Samantaray
MITS School of Biotechnology, Odisha, INDIA

Abstract

Probiotics are the live micro-organisms such as; bacteria or yeasts classified under good and beneficial bacteria for humans and animals. Inside the animal gut especially in the large intestine, there are thousands of naturally occurring bacteria acting positively for the animal health, reducing the activities of harmful bacteria. However, the researchers are working thoroughly about the gut and brain connection, which might play an essential factor in controlling anxiety and depression as well. Over the last 10 to 15 years, the effect of probiotics on the central nervous system have ben clinically verified by some of the researches. Most of the psychiatric disorders and memory abilities mainly depends upon the food that we are having in our daily life, which contains plenty of probiotics (1,2). Probiotics may directly alter the activity of the central nervous system or can affect the levels of BDNF, γ-aminobutyric acid (GABA), serotonin (5 hydroxytryptamine; 5 HT), and dopamine (DA), thus influencing mind and behavior (3,4). Probiotics plays a major role to improve our immune system as well as maintains the anti- inflammatory activity, which indirectly affects our endocrine and nervous system. Probiotics manipulates the live and benificial bacteria composition in the body, which in turn increases the metabolite concentraion produced by the mircrobiota, such as; short- chain fatty acids and tryptophan, which canm indirectly improve central nervous system function(5,6)

References:

1. O'Sullivan, E, Barrett, E, and Grenham, S (2011). BDNF expression in the hippocampus of maternally separated rats: does Bifidobacterium breve 6330 alter BDNF levels?. Benef Microbes. 2, 199-207.
2. Liu, YW, Liu, WH, and Wu, CC (2016). Psychotropic effects of Lactobacillus plantarum PS128 in early life-stressed and naïve adult mice. Brain Res. 1631, 1-12.
3. Desbonnet, L, Garrett, L, Clarke, G, Bienenstock, J, and Dinan, TG (2008). The probiotic Bifidobacteria infantis: an assessment of potential antidepressant properties in the rat. J Psychiatr Res. 43, 164-174.
4. Desbonnet, L, Garrett, L, Clarke, G, Kiely, B, Cryan, JF, and Dinan, TG (2010). Effects of the probiotic Bifidobacterium infantis in the maternal separation model of depression. Neuroscience. 170, 1179-1188.
5. Desbonnet, L, Garrett, L, Clarke, G, Bienenstock, J, and Dinan, TG (2008). The probiotic Bifidobacteria infantis: an assessment of potential antidepressant properties in the rat. J Psychiatr Res. 43, 164-174.
6. Hsiao, EY, McBride, SW, and Hsien, S (2013). Microbiota modulates behavioral and physiological abnormalities associated with neurodevelopmental disorders. Cell. 155, 1451-1463.

Biography:

Mr. Utkalendu Suvendusekhar Samantaray has been completed his master's in biotechnology from MITS School of biotechnology affiliated under Utkal university. He has worked on many research papers including biochemistry, anti-oxidant development, plant growth microbes, nanotechnology, etc. His major field of research includes phytochemicals, probiotics, cancer genomics, in-vitro production of therapeutics etc.

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