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Gut microbiota: Key to good health

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Gut microbiota refers to the total population of microorganisms inhabiting human gastrointestinal tract. These microorganisms play a significant functional role in human health by stimulating the immune system, preventing colonization by pathogenic microbes, maintaining of structural integrity of the gut mucosa, drug metabolism and aiding in digestion. An imbalance in gut microflora can occur due to excessive use of antibiotics, diet, and stress. This could result in mild infections to severe life-threatening diseases such as constipation, gastrointestinal tract infections, inflammatory bowel disease, irritable bowel syndrome, cardiovascular disease, food allergies, and antibiotic-induced diarrhea.

Diet supplemented with probiotics can help to restore the gut microbiota. Generally, probiotic microorganisms are *Lactobacillus* and *Bifidobacterium*; recently strains of *Bacillus*, *Pediococcus* and yeast such as *Saccharomyces* are considered as promising candidates. In the present study *Saccharomyces cerevisiae* Id18 isolated from traditional Indian fermented food – idli batter, exhibited probiotic attributes such as acid and bile salt tolerance, growth at 37°C, resistance to commonly used antibiotics, auto-aggregation ability and cell surface hydrophobicity. It showed antimicrobial action against enteric pathogens. It produced phytase, β-galactosidase, vitamin B12, and exopolysaccharides, and had the ability to assimilate cholesterol. A high-quality probiotic curd using this yeast strain *S. cerevisiae* Id18 was successfully produced, which had increased levels of protein,

vitamin B12, glutamic acid and lowered levels of glucose and cholesterol. This probiotic dairy product had a desirable quality, taste, and aroma along with a prolonged shelf life. Further studies on the efficacy of this dairy product are needed on animal models and humans.

Biography

Ashima Vohra is an Associate Professor in the Department of Microbiology, Institute of Home Economics, University of Delhi, India. She has her expertise in yeast enzymes, in particular, phytase, wherein she has shown that supplementation of animal feed with phytase results in improved growth and phosphorus assimilation. She had also conducted extensive research on yeasts isolated from traditional Indian fermented foods as a source of probiotics. Evaluation of the probiotic attributes along with the mechanism of action of the probiotic yeasts and preparation of a highly nutritious dairy product suggests the possible role of these yeasts in improving human and animal health. She has published several research papers and review articles in peer-reviewed journals and have two patents to her credit. She has presented her work in several National and International Conferences. She is also a recipient of the prestigious Indian National Science Academy Young Scientist Award, Govt. of India.

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