Tejinder Kaur et al., J Nutr Food Sci 2016, 6:6 (Suppl)
http://dx.doi.org/10.4172/2155-9600.C1.030

Effect of probiotic Pediococcus acidilactici MTCC 5101 supplementation on hemoglobin levels and gut microbiome among young anemic women of Punjab

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Anemia is a multifactorial deficiency due to nutritional or non-nutritional causes more common in reproductive age women and young girls. Iron from vegetarian staple diet is poorly absorbed in the gut due to inhibitory dietary components. To overcome the condition, probiotic use for improving micronutrient absorption, is advocated. Since health promoting effects of probiotics are strain specific, each strain needs to be thoroughly investigated prior to use. Further, any dietary supplement needs to be carefully evaluated before mass application as to its effect on composition of gut microbial communities. Metagenomic analysis is presently the most comprehensive tool available for analysis of complex gut microbial communities. Present study was aimed at providing a probiotic strain as supplement for anemia amelioration. Further, in order to assess safety of such supplementation, normal unsupplemented gut microbiome was compared with that of subjects after supplementation. Ten (10) young anemic women were fed lyophilized probiotic, *Pediococcus acidilactici* MTCC 5101, for 4 weeks. Blood hemoglobin levels and metagenomic variations in fecal samples were analyzed at baseline and one week after intervention. Hb levels were improved after supplementation with no side effects reported. A total of 3762 bacterial communities were identified at baseline and 4421 after intervention. A decrease among *Bacteroidetes* (962 phylotypes) and increase among *Proteobacteria* (3246 phylotypes) was observed. Analysis revealed that a majority of eliminated species were human gut pathogens, which may be attributed to bacteriocinogenic nature of probiotic used. An improvement in Hb levels may be a result of improved iron bioavailability and/or absorption.

Biography

Tejinder Kaur is currently pursuing her PhD on Development of a Shuttle Vector for Heterologous Protein Expression in Food grade Lactic Acid Bacteria at Department of Biotechnology, Punjabi University, Patiala. She has 2 research and 4 review papers published in peer reviewed journals and conference proceedings.

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