

3rd International Conference and Exhibition on Food Processing & Technology

July 21-23, 2014 Hampton Inn Tropicana, Las Vegas, USA

Management of oxidative stress and behavior by probiotics in rats during DMH induced colon carcinogenesis

S S Kanwar

CSK Himachal Pradesh Agricultural University, India

The protective effects of probiotics i.e. *Lactobacillus rhamnosus* GG (LGG), a reference strain and AdF10 (*Lactobacillus plantarum*), an indigenous isolate were assessed in an experimental model of 1, 2-dimethylhydrazine (DMH)-induced colon carcinogenesis. Tumor incidence and tumor multiplicity were decreased significantly in DMH-treated animals supplemented with AdF10 and LGG probiotics. In addition, a significant reduction in colon tumor size was also noticed in DMH-treated animals supplemented with probiotics. The levels of lipid peroxidation were lower in DMH-treated animals supplemented with probiotics in comparison to animals treated with DMH alone. DMH treatment for a period of 16 weeks resulted in a significant decrease in the activity of antioxidant enzymes such as reduced glutathione (GSH), glutathione peroxidase (GPx), glutathione-S- transferase (GST), superoxide dismutase (SOD) and catalase. However, supplementation with AdF10 (*L. plantarum*) and LGG (*L. rhamnosus* GG) resulted in significant increase in the activity of these enzymes. Supplementation also resulted in significant reduction in the activity of glutathione reductase (GR), an enzyme which catalyzes the regeneration of reduced glutathione. To assess the effect of probiotics on behavior of animals, different behavioral parameters such as anxiety, memory, muscular strength and locomotor activity were studied. Probiotics supplementation to DMH-treated rats was able to reduce the anxiety and cognitive behavior among the rats in comparison to DMH-treated animals. Probiotic administration to DMH-treated animals also resulted in significant improvement in motor coordination and spontaneous locomotor activity as detected by rotarod and actophotometer, respectively.

Biography

S S Kanwar is working as Professor and Head in the Department of Microbiology, Himachal Pradesh Agriculture University, Palampur India for the last eight years. He has total professional experience of more than thirty years and he is member of many professional bodies. He has fifty six publications to his credit in peer review journals and has guided more than thirty students for their postgraduate research. He has been the member of editorial board of three journals and reviewer of many national /international journals. He has the honor of getting eleven awards/honors from different agencies.

sskanwar@hillagric.ac.in