ABSTRACT

A novel, homogeneous Pleurotus eryngii polysaccharide (PEP) (molecular weight 426 kDa, purity 91.25 ± 3.14%) which mainly consisted of glucose with β-type glycosidic linkages was used to investigate in vivo fermentation behavior and effects on immune response in mice. Different doses (0.2, 0.4, 0.8 g per kg body weight) were orally administered to the mice for a period of six weeks. The results showed that the SCFA concentration, pH value, and moisture contents of cecum and colon contents were significantly altered with high-dose PEP treatment compared to the control group ($P < 0.05$). Moreover, the fecal microbiota in the PEP treated group was found to be structurally different compared to the control group; especially, the Porphyromonadaceae, Rikenellaceae, Bacteroidaceae and Lactobacillaceae abundances were all increased at the family level. In addition, the exerted immune response was significantly altered after the high-dose PEP oral administration. This exploratory study indicated that intake of PEP could have a positive role in gastrointestinal tract health.