

Effect of Iron Fortification on the Antibacterial Activity of Synbiotic Fermented Milk

Authors : Siti Helmyati, Euis Nurdiyawati, Joko Susilo, Endri Yuliati, Siti Fadhilatun Nashriyah, Kurnia Widyastuti

Abstract : Background: Iron fortification is one of the most effective and sustainable strategies to overcome anemia. It contradictively, has negative effect on gut microbiota balance. Pathogenic bacteria required iron for their growth. The iron source have greatly affect iron absorption in the intestine. Probiotic can inhibit the growth of pathogen. Lactobacillus plantarum Dad 13, Indonesian local isolate provides many benefits for health while fructo-oligosaccharides (FOS) provides selective substrates for probiotics' growth. Objective: To determine the effect of iron fortification (NaFeEDTA and FeSO₄) on antibacterial activity of synbiotic fermented milk. Methods: The antibacterial activity test was performed using the disc diffusion method. Paper discs were soaked in three kinds of synbiotic fermented milk, which are: 1) fortified with NaFeEDTA, 2) FeSO₄ and 3) control. Escherichia coli was inoculated on nutrient agar medium. The ability of inhibition was shown by the formation of clear zone around the paper disc and measured in diameter (mm). Results: Synbiotic fermented milk fortified with iron (either NaFeEDTA or FeSO₄) had antibacterial activity against Escherichia coli with diameter of clear zone were 6.53 mm and 12.3 mm, respectively (p<0.05). Compared to control (10.73 mm), synbiotic fermented milk fortified with FeSO₄ had similar antibacterial activity (p>0.05). Conclusions: In vitro, synbiotic fermented milk fortified with NaFeEDTA and FeSO₄ had different antibacterial activity against Escherichia coli. Iron fortification compound affected the antibacterial activity of synbiotic fermented milk.

Keywords : lactobacillus plantarum Dad 13, FOS, NaFeEDTA, FeSO₄, antibacterial activity

Conference Title : ICNFF 2015 : International Conference on Nutraceuticals and Functional Foods

Conference Location : Jeddah, Saudi Arabia

Conference Dates : January 26-27, 2015