

## INTISARI

**Latar belakang:** Kondisi *stunting* pada anak sering dikaitkan dengan defisiensi gizi makro dan mikro serta keseimbangan mikrobiota usus. Disbiosis mikrobiota usus sering dihubungkan dengan status malnutrisi anak terkait gangguan absorpsi zat gizi dalam usus. Fortifikasi zat besi dan zink pada susu sinbiotik diketahui bermanfaat terhadap komunitas mikrobiota usus guna meningkatkan utilitas zat gizi dalam tubuh. Penelitian ini bertujuan mengetahui pengaruh pemberian susu sinbiotik (*Lactobacillus plantarum* Dad13-fruktooligosakarida) dengan fortifikasi zat besi dan zink terhadap *Lactobacillus* dan *Enterobacteriaceae*.

**Metode:** Penelitian menggunakan rancangan *double-blind randomized controlled trial* pada 94 subjek balita stunting usia 24-59 bulan (pada awal penelitian). Subjek dirandomisasi dan dibagi menjadi kelompok fortifikasi yang diberi susu sinbiotik dengan fortifikasi ferro sulfat dan zink asetat dan kelompok kontrol yang diberi susu sinbiotik tanpa fortifikasi. Susu diberikan 100 mL/hari, 6x/minggu, selama 12 minggu. Kuantifikasi populasi *Lactobacillus* dan *Enterobacteriaceae* dilakukan dengan *quantitative real-time PCR* dari sampel feses sebelum dan sesudah intervensi.

**Hasil:** Subjek yang dianalisis sebanyak 58 orang yaitu 27 dari kelompok fortifikasi dan 31 dari kelompok kontrol. Populasi *Lactobacillus* berada pada jumlah normal yaitu sekitar 7 log sel/g. Pada kelompok fortifikasi, jumlah *Lactobacillus* cenderung meningkat dan *Enterobacteriaceae* cenderung menurun. Namun perubahan *Lactobacillus* dan *Enterobacteriaceae* pada kedua kelompok secara statistik tidak bermakna ( $p > 0,05$ ). Tidak terdapat perbedaan perubahan signifikan pada populasi bakteri *Lactobacillus* dan *Enterobacteriaceae* antara kelompok fortifikasi dan kelompok kontrol ( $p > 0,05$ ).

**Kesimpulan:** Pemberian susu sinbiotik baik dengan fortifikasi zat besi dan zink maupun tanpa fortifikasi tidak mempengaruhi populasi *Lactobacillus* dan *Enterobacteriaceae* pada feses balita *stunting*

**Kata Kunci :** sinbiotik, fortifikasi, *Lactobacillus*, *Enterobacteriaceae*, qPCR

## ABSTRACT

**Background:** Stunting conditions in preschool children are often linked with intestinal microbiota dysbiosis because of impaired nutrients absorption in the intestine. Iron and zinc fortification in synbiotic milk is known to be beneficial to the intestinal microbiota community in order to increase the utility of nutrients in host. This study evaluate the effect of iron and zinc fortification in synbiotic milk (*Lactobacillus plantarum* Dad13-fruktooligosakarida) on *Lactobacillus* and *Enterobacteriaceae* population in stool of stunting preschool children.

**Methods:** This study used a double-blind randomized controlled trial design on 94 stunting subjects aged 24-59 months. The subjects were randomized and divided into two groups to receive either synbiotic milk with or without ferrous sulfate and zinc acetate fortification. Synbiotic milk was given 100 mL/day, 6x /week, for 12 weeks. Quantification of *Lactobacillus* and *Enterobacteriaceae* populations was performed with quantitative real-time PCR of stool samples before and after intervention.

**Results:** As many as 58 subjects were analyzed, 27 from the fortification group and 31 from the control group. *Lactobacillus* population was in normal range about 7 log cell/g. The *Lactobacillus* population tended to increase and *Enterobacteriaceae* tended to decrease in the fortification group. However, the change in *Lactobacillus* and *Enterobacteriaceae* in both groups was not statistically significant ( $p > 0.05$ ). There was no significant change difference of *Lactobacillus* and *Enterobacteriaceae* population between fortification group and control group ( $p > 0,05$ ).

**Conclusion:** Synbiotic milk either with iron and zinc fortification or without fortification did not affect the population of *Lactobacillus* and *Enterobacteriaceae* in stool of stunting preschool children.

**Keywords:** synbiotic, fortification, *Lactobacillus*, *Enterobacteriaceae*, qPCR