

Pengaruh Konsumsi Probiotik Powder *Lactobacillus plantarum* Dad-13 Terhadap Populasi *Lactobacillus*, *Bifidobacterium*, *Coliform* dan Konsentrasi *Short chain fatty acid* Pada Feses Pelajar Di SMPN 1 Ngeplak Yogyakarta

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Intisari

Usus manusia dihuni oleh mikrobiota yang sangat kompleks, konsumsi probiotik terbukti dapat menyeimbangkan ekosistem mikrobiota dalam saluran pencernaan. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh dari konsumsi probiotik powder yang mengandung *Lactobacillus plantarum* Dad-13 terhadap populasi *Lactobacillus*, *Escherichia coli*, *Coliform non E. coli* dan *Bifidobacterium* serta konsentrasi *short chain fatty acid* pada feses pelajar di SMPN 1 Ngeplak Yogyakarta. Sebanyak 40 subjek pelajar dibagi menjadi kelompok placebo yang mengkonsumsi skim milk dan kelompok probiotik yang mengkonsumsi probiotik powder *L. plantarum* Dad-13 (2×10^9 CFU/g) selama 65 hari, dengan metode *randomized double-blind placebo-controlled*. Analisa dilakukan dengan menghitung jumlah mikrobiota dengan *culture method* dan RT-PCR, analisa *short-chain fatty acid* (asam asetat, propionat, butirrat), nilai pH dan kualitas feses. Hasil penelitian menunjukkan bahwa kelompok placebo tidak mengalami perubahan yang signifikan pada semua analisa. Pada kelompok probiotik terjadi peningkatan signifikan pada populasi bakteri *L. plantarum* dan *Lactobacillus*. Pada populasi *Bifidobacterium* tidak terjadi perubahan yang signifikan, sedangkan populasi *E.coli*, *Coliform non E.coli* dapat menurun pada 55% dan 75% subjek penelitian. Konsumsi probiotik powder *L. plantarum* Dad-13 dapat meningkatkan asam propionat dan menurunkan pH secara signifikan. Kualitas feses subjek tidak mengalami perubahan yang signifikan.

Kata kunci : Indigenous Probiotik powder, *Lactobacillus plantarum* Dad-13, *Bifidobacterium*, *Coliform*, SCFA

**Effects of Consumption Probiotic Powder *Lactobacillus plantarum* Dad-13
on Population of *Lactobacillus*, *Bifidobacterium*, *Coliform* and Short Chain
Fatty Acid of Fecal of Junior High School Students, Ngemplak Yogyakarta**

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ABSTRACT

Human intestines are inhabited by very complex microbiota and the consumption of probiotics is proven to balance the microbiota ecosystem in the digestive tract. The purpose of this research were to know the effect of probiotic powder consumption containing *Lactobacillus plantarum* Dad-13 to population of *Lactobacillus*, *Escherichia coli*, *Coliform non E. coli*, *Bifidobacterium* and concentration of short chain fatty acids in feces students in Junior High School Students Ngemplak Yogyakarta. A total of 40 subjects were divided into placebo groups who consumed skim milk and probiotic groups who consumed probiotic powder *L. plantarum* Dad-13 (2×10^9 CFU/g) for 65 days, using a randomized double-blind placebo-controlled method. Analyzes were performed by counting the number of microbiota by culture method and RT-PCR, short chain fatty acids analysis (acetic, propionate, butyrate acid) and fecal quality. The results showed that in the placebo group there were no significant effect on all analyzes. In the probiotic group there was a significant increased in population of *L. plantarum* and *Lactobacillus* bacteria. In the *Bifidobacterium* population did not change significantly, whereas the population of *E. coli* and *Coliform non E. coli* were decreased at 55% and 75% of subjects, respectively. Consumption of probiotic powder *L. plantarum* Dad-13 could increase propionic acid and decrease pH significantly. The quality of stool did not change significantly in both placebo and probiotic groups

Keywords: Indegenous Probiotic powder, *Lactobacillus plantarum* Dad-13, *Bifidobacterium*, *Coliform*, SCFA