

**PENGARUH APLIKASI PROBIOTIK *LACTOBACILLUS PLANTARUM* TOPIKAL
TERHADAP PENURUNAN KADAR INTERLEUKIN-8,
INTERLEUKIN-12 DAN TUMOR NEKROSIS FAKTOR- α
PADA PASIEN AKNE VULGARIS**



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ABSTRAK

**PENGARUH APLIKASI PROBIOTIK *LACTOBACILLUS PLANTARUM* TOPIKAL
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Hendra Tarigan Sibero

Akne vulgaris merupakan inflamasi kronik unit pilosebaceus yang menyerang 94 % populasi dunia dan insidennya semakin meningkat pertahun di Indonesia. Menjadi masalah sukar di bidang kesehatan kulit karena pathogenesisnya belum sepenuhnya diketahui, butuh waktu lama dan banyak efek samping selama pengobatannya sehingga pasien sering tidak patuh dalam pengobatannya. Reaksi imunologis host terhadap *Cutinebacterium acnes* dianggap faktor paling berperan penting untuk terjadinya inflamasi dalam pathogenesis akne vulgaris. Tujuan Penelitian ini menganalisis pengaruh aplikasi probiotik *Lactobacillus plantarum* topikal terhadap kadar Interleukin-8 (IL-8), Interleukin-12 (IL-12) dan *Tumor Necrosis Factor- α* (TNF- α) pada pasien akne vulgaris sedang dan berat.

Penelitian ini merupakan penelitian eksperimental dengan desain *single-blind randomized controlled trial* (RCT) dengan *two group pre-post test*. Penelitian dilakukan di Pondok Pesantren Diniyah Putri Provinsi Lampung sejak bulan Agustus- Oktober 2020 pada 60 responden dengan *consecutive sampling*. Kadar IL-12, IL-8 dan TNF- α darah diukur dua kali yaitu sebelum diterapi dan tiga bulan setelah diterapi. Terapi yang diberikan dibagi dalam dua kelompok, yaitu kelompok yang diterapi standar saja dan kelompok yang diterapi standar dan *Lactobacillus plantarum*.

Hasil penelitian mendapatkan Terdapat perbedaan rata-rata kadar IL-8 dan IL- 12 pada pasien akne vulgaris sedang dan berat yang mendapat terapi standar dan *Lactobacillus plantarum* ($p < 0,01$ dan $p < 0,01$). Tidak terdapat perbedaan rata-rata kadar TNF- α pada pasien akne vulgaris sedang dan berat yang mendapat terapi standar dan *Lactobacillus plantarum* ($p = 0,584$)

Dari hasil penelitian dapat disimpulkan ada pengaruh aplikasi probiotik *Lactobacillus plantarum* topikal terhadap kadar Interleukin-8, Interleukin-12, dan *Tumor Necrosis Factor- α* pada pasien akne vulgaris sedang dan berat dibandingkan dengan aplikasi terapi standar saja. Namun untuk penurunan kadar *Tumor Necrosis Factor- α* tidak bermakna secara statistik.

Kata kunci: Akne Vulgaris, IL-8, IL-12, *Lactobacillus plantarum*, TNF- α ,

ABSTRACT

THE EFFECT OF *LACTOBACILLUS PLANTARUM* APPLICATION ON INTERLEUKIN-8, INTERLEUKIN-12 AND TUMOR NECROSIS FACTOR- α LEVEL IN ACNE VULGARIS PATIENTS

Hendra Tarigan Sibero

Background : Acne vulgaris is a chronic inflammation of the pilosebaceous unit that affects 94% of the world's population and this incidence is increasing every year in Indonesia. This is a difficult problem in the field of skin health because the pathogenesis of acne vulgaris is not fully known. During the treatment process it takes a long time and has many side effects so that patients often do not comply with their treatment. Host immunological reaction to *Cutinebacterium acnes* is considered an important factor for the occurrence of inflammation in the pathogenesis of acne vulgaris.

Objective : This study analyzed the effect of topical application of probiotic *Lactobacillus plantarum* on levels of Interleukin-8 (IL-8), Interleukin-12 (IL-12), and Tumor Necrosis Factor- α (TNF- α) in moderate and severe acne vulgaris patients.

Methods : This study is an experimental study with a single-blind randomized controlled trial (RCT) design with two groups pre-post test. The study was conducted at the Diniyah Putri Islamic Boarding School, Lampung Province from August-October 2020 on 60 respondents with consecutive sampling. Blood levels of IL-8, IL-12, and TNF- α were measured twice before treatment and three months after treatment. The therapy given was divided into two groups, the standard treated group and the standard treated group and *Lactobacillus plantarum*.

Results : There was a difference in the mean levels of IL-8 and IL-12 in patients with moderate and severe acne vulgaris who received standard therapy and *Lactobacillus plantarum* ($p < 0.01$ and $p < 0.01$). There was no difference in the mean levels of TNF- in patients with moderate and severe acne vulgaris who received standard therapy and *Lactobacillus plantarum* ($p = 0.584$)

Conclusion : From the results of the study, there is an effect of topical application of probiotic *Lactobacillus plantarum* on levels of Interleukin-8 and Interleukin-12 in moderate and severe acne vulgaris patients, but there is no effect of topical application of probiotic *Lactobacillus plantarum* on levels of Tumor Necrosis Factor- α in acne patients vulgaris moderate and severe.

Keyword: Acne Vulgaris, IL-8, IL-12, *Lactobacillus plantarum*, TNF- α