

**PENGARUH PEMBERIAN MINUMAN LIDAH BUAYA  
TERHADAP KADAR ANTIOKSIDAN TOTAL  
DAN PERSENTASE LEMAK TUBUH  
PADA SINDROM METABOLIK**

**Studi Eksperimental Pada Pegawai Kepolisian Republik Indonesia Daerah Jawa  
Tengah**

***THE EFFECT OF ALOE VERA-BASED DRINK TOWARD TOTAL  
ANTIOXIDANT CONCENTRATION AND BODY FAT PERCENTAGE IN  
METABOLIC SYNDROME***

***SUBJECTS***

***Experimental Study on Police Officers***



**Tesis**

**Untuk memenuhi sebagian persyaratan  
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# **Pengaruh pemberian minuman lidah buaya terhadap kadar antioksidan total dan persentase lemak tubuh pada sindrom metabolik**

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## **ABSTRAK**

**Latar Belakang:** Sindrom metabolik melibatkan kelainan metabolisme glukosa (hiperglikemia), lipid (dislipidemia), peningkatan tekanan darah dan obesitas sentral. Sindrom metabolik berisiko tinggi terkena penyakit jantung, diabetes mellitus, hipertensi, dan kematian. Lidah buaya mengandung sejumlah besar polifenol dan banyak vitamin yang bermanfaat dalam mencegah resistensi insulin, inflamasi kronis dan stres oksidatif.

**Tujuan:** Membuktikan pengaruh pemberian minuman lidah buaya terhadap peningkatan kadar antioksidan total dan penurunan persentase lemak tubuh pada sindrom metabolik.

**Metode:** True experiment, open randomized, pre-post-test, control group design yaitu kontrol (n=19) dan perlakuan (n=19) yang sindrom metabolik. Pemberian minuman lidah buaya (perlakuan) 165 gr/hari (30 hari). Pemeriksaan kadar antioksidan total (metode ABTS) dan persentase lemak tubuh (metode BIA) pada pre dan post penelitian, asupan makanan (recall 3x24 jam), aktivitas fisik (formulir GPAQ). Uji beda sebelum dan setelah pemberian antar kelompok menggunakan independent t-test (kadar antioksidan total) dan Mann-whitney-test (persentase lemak tubuh).

**Hasil:** Terjadi kenaikan kadar antioksidan total dari 1,2 mmol/L menjadi 2,0 mmol/L ( $p=0,00$ ) pada kelompok perlakuan setelah pemberian minuman lidah buaya, sedangkan kelompok kontrol terjadi penurunan dari 1,4 mmol/L menjadi 1,3 mmol/L ( $p=0,061$ ). Ada perbedaan kadar antioksidan total setelah pemberian minuman lidah buaya ( $p=0,00$ ) antara kedua kelompok. Terjadi penurunan persentase lemak tubuh dari 32,8 mmol/L menjadi 32,4 mmol/L ( $p=0,005$ ) pada kelompok perlakuan, sedangkan kelompok kontrol terjadi kenaikan dari 33,1 mmol/L menjadi 33,4 mmol/L ( $p=0,100$ ). Tidak ada perbedaan persentase lemak tubuh setelah pemberian minuman lidah buaya ( $p=0,358$ ) antara kedua kelompok.

**Kesimpulan:** Pemberian minuman lidah buaya terbukti meningkatkan kadar antioksidan total tetapi tidak menurunkan persentase lemak tubuh pada sindrom metabolik.

**Kata kunci:** Sindrom metabolik, minuman lidah buaya, kadar antioksidan total, persentase lemak tubuh

# **THE EFFECT OF ALOE VERA-BASED DRINK TOWARD TOTAL ANTIOXIDANT CONCENTRATION AND BODY FAT PERCENTAGE IN METABOLIC SYNDROME SUBJECTS**

**Marisi Elizabeth R. Silitonga**

## **ABSTRACT**

**Background:** Metabolic syndrome is related to glucose metabolism disturbance (hyperglycemia), lipid (dyslipidemia), high blood pressure, and central obesity. Metabolic syndrome implicates to heart attack, diabetes mellitus, hypertension, and death. Aloe vera, well known rich of polyphenol and vitamin, has a pharmacological effect to improve insulin resistance, chronic inflammation, and oxidative stress.

**Aim:** To prove the effect of Aloe vera-based drink toward total antioxidant concentration improvement and body fat percentage reduction in metabolic syndrome subjects.

**Methods:** This study was pre-post randomized true experimental study with control group design. The subjects were divided by 2 groups, treatment group (n=19) and control group (n=19). Treatment group was given 165 g/d Aloe vera-based drink for 30 days. Both of groups were given nutrition education about metabolic syndrome management. Total antioxidant concentration and body fat percentage were assessed pre-post-test by ABTS and BIA respectively, while food intake and activity were assessed by 24-h recall and GPAQ respectively. Independent t-test and Mann Whitney test were used to compare before and after treatment between control and treatment group.

**Results:** Total antioxidant concentration significantly improved ( $p=0.00$ ) in treatment group from 1.2 to 2.0 mmol/L, while total antioxidant concentration decreased from 1.4 to 1.3 mmol/L ( $p=0.074$ ) in this control group. Moreover, there was significant difference of total antioxidant between treatment and control groups in the end of study ( $p=0.00$ ). Furthermore, body fat percentage was reduced significantly from 32.8 to 32.4 mmol/L ( $p=0.005$ ) in treatment group, while the reduction of body fat percentage in control group was not significant from 33.1 to 33.4 mmol/L ( $p=0.100$ ). There was no difference of body fat percentage between two groups after intervention ( $p=0.358$ ).

**Conclusion:** Aloe vera-based drink improved total antioxidant concentration in metabolic syndrome subjects.

**Keywords:** metabolic syndrome, Aloe vera-based drink, total antioxidant concentration, body fat percentage