

INTISARI

Hiperglikemik merupakan ciri diabetes mellitus (DM). Upaya penanganan DM dapat dilakukan dengan memperhatikan *life style* dan konsumsi obat, baik sintetik maupun berasal dari tanaman. Salah satu tanaman yang dapat digunakan adalah lidah buaya [*Aloe vera* (L.) Burm. f.]. Namun, di dalam getah lidah buaya mengandung antraknon yang mempunyai efek laksatif, sehingga dilakukan pemisahan antara gel dan getah yang terdapat di daun lidah buaya, kemudian dilakukan optimasi dan kombinasi dosis gel dan getah daun lidah buaya.

Getah dan gel daun lidah buaya dipisahkan, kemudian dibuat ekstrak kering. Gel dan getah tersebut dianalisis secara kualitatif dengan KLT dan semi kuantitatif dengan dihitung kadar antraknon total dalam getah dan kadar polisakarida dalam gel. Selain itu, diuji efek farmakologinya dengan parameter kadar glukosa darah, kadar insulin, aktivitas MDA, SOD, dan GPx. Uji farmakologi dilakukan selama 21 hari pada 40 ekor tikus jantan galur wistar yang dibagi menjadi 8 kelompok. Kadar glukosa darah ditetapkan saat tikus berumur 7, 8, 9 dan 10 minggu dengan metode GOD-PAP. Aktivitas MDA, SOD dan GPx ditetapkan dengan metode enzimatik. Data kadar glukosa darah, kadar insulin, aktivitas MDA, SOD dan GPx dianalisis statistik dengan uji *One way ANOVA*.

Hasil rendemen getah daun lidah buaya sebesar 0,007% b/b dan rendemen gel daun lidah buaya sebanyak 0,56% b/b. Kadar antraknon yang dihitung sebagai aloin A dalam getah daun lidah buaya adalah sebesar $8,069 \pm 0,000$ $\mu\text{g}/\text{mg}$. Selain itu, juga dilakukan penentuan kadar polisakarida yang terkandung didalam gel daun lidah buaya yaitu $15,257 \pm 0,048\%$ b/b. Profil kromatografi menunjukkan hasil bahwa adanya perbedaan bercak antara gel dan getah daun lidah buaya, sehingga dapat diketahui bahwa pemisahan antara getah dan gel telah dilakukan dengan baik. Uji kadar glukosa menunjukkan bahwa gel daun lidah buaya memberikan % potensi penurunan kadar glukosa darah preprandial tertinggi pada minggu ke-10 yaitu $33,32 \pm 1,21\%$. Pemberian gel, getah atau kombinasinya belum dapat diketahui secara pasti pengaruhnya terhadap kadar insulin, uji aktivitas MDA, SOD dan GPx. Dosis getah yang diberikan, baik tunggal maupun kombinasi dengan gel tidak ditemukan adanya efek samping laksatif.

Kata kunci : hiperglikemik, gel daun lidah buaya, getah daun lidah buaya, kadar glukosa darah

ABSTRACT

Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia. Efforts to treat DM can be done by paying attention to life style and consumption of drugs, both synthetic drug and herbal medicine. *Aloe vera* (L.) Burm. f is one of the herbal medicine that can be used to treat diabetes. However, the exudate of *A. vera* contained anthraquinone which has laxative effects. Therefore, the exudate and gel contained in aloe leaf have to be separated and then optimization and combination of doses of exudate and gel of *A. vera* leaves were carried out.

Exudate of *A. vera* leaves were and then dried. Gel and exudate were qualitatively analyzed using TLC, and semi-quantitative analyzed by measuring total anthraquinone concentrations in the exudate and polysaccharide concentrations in the gel. The pharmacological effects of gel and exudate were evaluated using blood glucose levels, insulin levels, MDA, SOD, and GPx activities. Pharmacological tests were performed for 21 days in 40 male Wistar rats. Blood glucose levels were determined on 7th, 8th, 9th and 10th week. Data of blood glucose levels, insulin levels, MDA, SOD and GPx activities were analyzed statistically using One-way ANOVA test.

Result showed that the yield of *A. vera* leaf exudate was 0.007% w/w and the yield of *A. vera* gel was 0.56% w/w. The anthraquinone content, calculated as aloin in *A. vera* exudate was 8.069 ± 0.000 µg/mg. Moreover, the determination of polysaccharide content contained in the gel of *A. vera* leaves was 15.257 ± 0.048 % w/w. Chromatographic profiles displayed a difference between the spots of the exudate and the gel of *A. vera* leaves. Glucose using glibenclamide, gel, exudate and also a combination of gel-exudate with several doses showed that the gel provide the best potential reduction in preprandial blood glucose levels. Whereas, the effect of gel, exudate or combination towards insulin levels, MDA, SOD and GPx activities were still unknown. With given dose of exudate, there were no laxative adverse effects found either in exudate alone or in combination with gel.

Keywords: hyperglycemia, *A. vera* exudate, *A. vera* gel, blood glucose level