

ABSTRACT

THE EFFECT OF GREEN APPLE JUICE (*Malus domestica*) AND BITTER MELON (*Momordica charantia*) ON PANCREAS HISTOPATOLOGI IN MALE WHITE RATS SPRAGUE-DAWLEY (*Rattus norvegicus*) DIABETES MELLITUS MODEL

BY

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Background : Diabetes Mellitus (DM) occurs due deficiency of insulin. The endocrine function conducted by Langerhans which charge of producing hormone glucagon and insulin which when the body hypoglycemia, glycogenesis will occur in liver. Apples contain pectin has potential to lower blood glucose levels. Bitter melon has saponins, flavonoids, polyphenols, and vitamin C function as antioxidants that aim to ward off free radicals. This study was conducted to determine the effect of green apple and bitter melon (juice on the histopathological of pancreas with white rats male diabetes mellitus model.

Methods: This research is a post test only control group design. The samples are 25 white rats divided into 5 groups, KN (standard diet), K- (aloxan 150 mg/KgBW), P1 (aloxan+ bitter melon juice 50 mg/KgBW), P2 (aloxan+apple juice 3.25 g/ KgBW), P3(aloxan+apple juice 20 mg/KgBW+pare juice 20 mg/KgBW). Examination of blood glucose levels used a glucometer and histopathological.

Results: The mean blood glucose KN = 80 K- = 413.3, P1 = 254.4, P2 = 171, P3 = 232.6. The number of Langerhans average of KN = 29.2, K- = 6, P1 = 7.8, P2 = 13.6, P3 = 9.2 Kruskal Wallis test $p = 0.003$. The mean of Langerhans KN=5,489.9 m², K- = 18,497.5 m², P1=7,416.6 m², P2=10,125.7 m², P3=8,715.4 m², One Way ANOVA test, p value = 0.000.

Conclusion: Based on the results of the study, it was concluded that there was an effect of apple juice on blood glucose levels and histopathological description of the pancreas of white rats male strain model of diabetes mellitus. While bitter melon juice and the combination of apple juice and bitter melon did not have a significant effect on glucose levels and histopathological.

Key word: Diabetes Mellitus, Appel, Bitter melon, Pancreas

ABSTRAK

PENGARUH PEMBERIAN JUS APEL HIJAU (*Malus domestica*) DAN PARE (*Momordica charantia*) TERHADAP GAMBARAN HISTOPATOLOGI PANKREAS TIKUS PUTIH (*Rattus norvegicus*) GALUR *Sprague Dawley* JANTAN MODEL DIABETES MELITUS

Oleh

MUHAMMAD AQMAL HIDAYAH

Latar Belakang : Diabetes Mellitus (DM) terjadi karena defisiensi insulin yang diproduksi pankreas. Fungsi endokrin oleh sel Langerhans menghasilkan hormon glukagon dan insulin yang berperan ketika tubuh hipoglikemia maka terjadi glikogenolisis di hati. Apel memiliki pektin yang berpotensi menurunkan glukosa darah sedangkan pare *saponin*, *flavonoid*, *polifenol*, dan vitamin C berfungsi sebagai antioksidan yang bertujuan menangkal radikal bebas. Penelitian ini dilakukan untuk mengetahui pengaruh pemberian jus apel hijau dan pare terhadap gambaran histopatologi pankreas tikus putih jantan model diabetes melitus.

Metode Penelitian : Penelitian ini eksperimental desain *post test only control group design*. Jumlah sampel 25 ekor tikus putih dibagi 5 kelompok yaitu KN (diet standar), K- (aloksan 150 mg/KgBB), P1(aloksan+ jus pare 50 mg/KgBB), P2 (aloksan+jus apel 3,25 g/KgBB), P3(aloksan+jus apel 20 mg/KgBB+jus pare 20 mg/KgBB). Pemeriksaan kadar glukosa darah digunakan glukometer dan pemeriksaan gambaran histopatologi.

Hasil Penelitian: Rerata glukosa darah didapatkan KN= 80 K- = 413,3, P1= 254,4, P2= 171, P3=232,6. Jumlah pulau langerhans rerata KN=29,2, K- = 6, P1=7,8, P2=13,6, P3=9,2 *Kruskal Wallis* p=0,003. Rerata pulau yaitu KN=5.489,9 μm^2 , K- =18.497,5 μm^2 , P1=7.416,6 μm^2 , P2=10.125,7 μm^2 , P3=8.715,4 μm^2 , uji One Way ANOVA nilai p= 0,000

Simpulan: Penelitian ini disimpulkan terdapat pengaruh jus apel terhadap kadar glukosa darah dan gambaran histopatologi pankreas tikus putih (jantan model diabetes melitus, sedangkan jus pare dan kombinasi jus apel dan pare tidak memberikan pengaruh yang signifikan terhadap kadar glukosa dan gambaran histopatologi tikus putih.

Kata Kunci: Diabetes Melitus, Apel, Pare,Pankreas