

## Pengaruh Pemberian Jus Kersela Terhadap Kadar Glukosa dan MDA Darah Tikus Wistar Diabetes Tipe 2

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INTISARI

**Latar Belakang :** Diabetes melitus adalah penyakit mematikan nomor keempat di negara-negara maju sedangkan Indonesia menduduki peringkat ketujuh di dunia. Meningkatnya kejadian diabetes berkaitan dengan tingginya kadar glukosa darah dan apabila tidak dikontrol akan berlanjut ke kondisi hiperglikemia. Komplikasi diabetes dapat disebabkan oleh kondisi hiperglikemia yang memacu modifikasi oksidatif dan pembentukan radikal bebas. Pencegahan dan tata laksana diabetes dapat dilakukan untuk mengontrol kadar glukosa dan menghambat terbentuknya radikal bebas adalah dengan mengkonsumsi obat dan pengaturan pola makan yang mengandung antioksidan yang tinggi termasuk konsumsi flavonoid. Buah kersen (*Muntingia calabura*) dan kelopak bunga rosella (*Hibiscus sabdariffa*) mengandung flavonoid yang tinggi yang bisa dimanfaatkan sebagai alternatif pencegahan dari bahan lokal.

**Tujuan :** Mengkaji perbedaan efek pemberian jus kersen, seduhan bunga rosella dan jus kersela dalam penurunan kadar glukosa dan MDA (Malondialdehyde) darah tikus DM tipe 2 yang diinduksi STZ-NA.

**Metode :** Jenis penelitian eksperimental murni dengan rancangan *pretest-posttest with control group design*. Tikus wistar jantan sebanyak 25 ekor umur 2 bulan dibagi menjadi 5 kelompok. Setelah adaptasi selama satu minggu, K1 (kontrol normal) tidak diberikan intervensi, K2 (kontrol negatif) tidak diberikan intervensi, K3 diberikan jus kersen 1,29 ml/200 gr BB, K4 diberikan seduhan kelopak bunga rosella 5,74 ml/200 gr BB dan K5 diberikan jus kersela 3,52 ml/200 gr BB. Analisis darah glukosa dan MDA dilakukan 2 kali yaitu setelah adaptasi dan setelah pemberian perlakuan selama 4 minggu. Analisis data menggunakan uji ANOVA dan *paired t-test*.

**Hasil :** Penelitian menunjukkan bahwa dalam pemberian jus Kersen 1,29 ml/200 gr BB, seduhan kelopak bunga rosella 5,74 ml/200 gr BB dan jus Kersela 3,52 ml/200 gr BB terdapat penurunan kadar glukosa dan MDA darah yang signifikan ( $p < 0,05$ ). Persentase penurunan kadar glukosa darah adalah K3= 38,87%, K4 = 44,41%, dan K5= 54,23%. Penurunan kadar MDA darah adalah K3=32,11%, K4=57,50%, dan K5= 72,11%.

**Kesimpulan :** Pemberian jus buah Kersen (*Muntingia calabura*), seduhan kelopak bunga Rosella (*Hibiscus sabdariffa*) dan jus Kersela dapat mencegah komplikasi dengan memperbaiki fungsi beta sel pankreas yang diamati dengan penurunan kadar glukosa dan MDA darah. Jus Kersela 3,52 ml/200 gr BB memberikan penurunan terbesar.

**Kata Kunci :** glukosa, MDA (*Malondialdehyde*), kersen (*Muntingia calabura L*), rosella (*Hibiscus sabdariffa Linn*), kersela, diabetes melitus

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**The Effects of Kersela Juice towards Glucose and MDA (*Malondialdehyde*)  
Levels in Wistar Rats with Diabetes Mellitus**

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**ABSTRACT**

**Introduction:** Diabetes mellitus is the fourth deadly disease in most high-income-countries and Indonesia ranks seventh in the world. The rise of this disease is related to the increased glucose level in blood and if it isn't controlled it can result hyperglycemia. The complication of diabetes mellitus can be caused by hyperglycemia condition which spurs on the oxidative modification activity and the formation of free radicals. The prevention and treatment of diabetes mellitus can be done in order to decrease the high glucose level and impede the formation of free radical by consuming medicine and having a good dietary intake including antioxidant flavonoid. The presence of flavonoid in Kersen (*Muntingia calabura*) and Rosella (*Hibiscus sabdariffa*) have the beneficial effects to reduce diabetes mellitus.

**Aim:** The study was conducted to determine the different effects of Kersen (*Muntingia calabura*), Rosella (*Hibiscus sabdariffa*) and Kersela juice by observing the reduction of the glucose and MDA (*Malondialdehyde*) levels in blood of Wistar rats with diabetes mellitus.

**Method:** The study is a pure experiment which is using a *pretest - posttest* with control group design. Twenty five male Wistar rats were divided into 5 groups. After adaptation for one week, K1 (normal control) didn't receive intervention, K2 (negative control) didn't receive intervention, K3 received 1,29 mL/200 gr body weight of Kersen juice, K4 received 5,74 mL/200 gr body weight of Rosella petal steeping, K5 received 3,52 mL/200 gr body weight of Kersela juice. Glucose and MDA (*Malondialdehyde*) analysis were done twice, which were after adaptation and after four weeks intervention. Data analysis used *one way ANOVA*, *repeated measure Anova* and *paired t-test*.

**Result:** The study showed that within the giving of 1,29 ml/200 gr body weight Kersen juice, 5,74 ml/200 gr body weight of Rosella petal steeping, and 3,52 ml/200 gr body weight of Kersela juice, there were significant decreasing levels of glucose and MDA with  $p < 0,05$ . The percentage of the decreased glucose level in blood were K3= 38,87%, K4= 44,41% and K5= 54,23%. The percentage of the decreased MDA level in blood were K3=32,11%, K4=57,50% and K5= 72,11%.

**Conclusion:** Giving Kersen juice (*Muntingia calabura*), Rosella (*Hibiscus sabdariffa*) and Kersela juice to Wistar rats can prevent complication by repairing pancreas beta cell function which is observed through the reduction of glucose and MDA in blood. Kersela juice 3,52 ml/200 gr body weight gives the biggest reduction.

**Keyword:** glucose, MDA (*Malondialdehyde*), Kersen (*Muntingia calabura L*), Rosella (*Hibiscus sabdariffa Linn*), Kersela, diabetes mellitus

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