

Efek -mangostin terhadap fungsi ginjal dan kadar asam urat dalam plasma darah tikus model resistensi insulin: Kajian pada ekspresi transporter URAT1, GLUT9 dan SGLT2 = Effect of -mangostin on kidney function and plasma uric acid level of insulin resistance rat model: Focus on URAT1, GLUT9 and SGLT2 transporters expression.

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Abstrak

Pendahuluan: Hiperurisemia sering terjadi pada pasien DM tipe 2, hal ini disebabkan adanya penurunan ekskresi asam urat yang berkaitan dengan resistensi insulin (RI) dan hiperinsulinemia. Tujuan dari penelitian ini adalah untuk mengetahui efek -mangostin terhadap fungsi ginjal dan kadar asam urat dalam plasma darah tikus model resistensi insulin.

Metode: Tikus jantan galur wistar dibagi menjadi 6 kelompok secara acak: normal, normal yang diberi -mangostin 200 mg/kgBB, RI, RI yang diberi metformin 200 mg/kgBB, RI yang diberi -mangostin 100 mg/kgBB dan RI yang diberi -mangostin 200 mg/kgBB. Pemberian -mangostin dan metformin dilakukan selama 8 minggu dan diberikan secara peroral. Kelompok perlakuan diberi diet tinggi lemak, glukosa 20% dan induksi STZ dosis rendah. Pada akhir penelitian, sampel urin, darah dan ginjal diambil dan diukur proteinuria, BUN, klirens kreatinin, asam urat plasma, transporter URAT1, GLUT9, SGLT2 dan histopatologi ginjal.

Hasil: -mangostin 100 mg/kgBB dan 200 mg/kgBB mampu menurunkan BUN dan asam urat plasma secara signifikan, -mangostin 100 mg/kgBB dan 200 mg/kgBB cenderung menurunkan proteinuria, meningkatkan klirens kreatinin, menurunkan ekspresi URAT1, GLUT9, SGLT2 serta memperbaiki kerusakan ginjal dibandingkan dengan kelompok RI tanpa pengobatan.

Kesimpulan: -mangostin 100 mg/kgBB dan 200 mg/kgBB mampu menurunkan kadar asam urat plasma dan cenderung memperbaiki fungsi ginjal pada tikus model RI.

.....**Background:** Hyperuricemia often occurs in type 2 diabetes mellitus, this is due to a decrease in uric acid excretion associated with insulin resistance (IR) and hyperinsulinemia. The aim of this study was to analyze the effects of -mangostin on kidney function and plasma uric acid level of insulin resistance rat model.

Method: Wistar male rats were divided into 6 groups, such as normal, normal + - mangostin 200 mg/kgBW, IR, IR + metformin 200 mg/kgBW, IR + -mangostin 100 mg/kgBW and IR + 200 mg/kgBW. -mangostin and metformin were administered by gavage for 8 weeks. To induce IR, treatment groups were given a high-fat diet, glucose 20%, and low-dose injection of STZ. At the end of the study, urine, blood, and kidney tissue were taken and measured proteinuria, BUN, creatinine clearance, plasma uric acid, expressions of URAT1, GLUT9, and SGLT2 as well as kidney histopathology

Results: -mangostin 100 mg/kgBW and 200 mg/kgBW were able to significantly reduce BUN and plasma uric acid levels. -mangostin 100 mg/kgBW and 200 mg/kgBW tended to reduce proteinuria, increase creatinine clearance, reduce the expression of URAT1, GLUT9, SGLT2, as well as improve renal damage compared to that of IR untreated group.

Conclusion: -mangostin 100 mg/kgBW and 200 mg/kgBW were able to reduce plasma uric acid levels dan tended to alleviate renal dysfunction in IR rat model.