

ABSTRAK

PENGARUH PEMBERIAN MINYAK IKAN PATIN (*Pangasius hypophthalmus*), EKSTRAK KUNYIT (*Curcuma longa* Linn.) DAN KOMBINASINYA TERHADAP KADAR TNF- α (TUMOR NECROSIS FACTOR- α) DAN HOMA-IR (HOMEOSTATIC MODEL ASSESSMENT OF INSULIN RESISTANCE) PADA TIKUS WISTAR DIINDUKSI HIGH FAT HIGH FRUCTOSE DIET

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Latar Belakang: mediator pro-inflamasi TNF- α sangat kuat berkorelasi dengan resistensi insulin pada sindrom metabolik. Salah satu strategi potensial memperbaiki inflamasi dan resistensi insulin dengan konsumsi harian omega-3 (EPA dan DHA) dalam minyak ikan patin dan senyawa polifenol dari ekstrak kunyit.

Tujuan: menganalisis pengaruh minyak ikan patin, ekstrak kunyit dan kombinasinya terhadap kadar TNF- α dan HOMA-IR pada tikus wistar diinduksi *high fat high fructose diet*.

Metode: *randomized pre-post test with control group design*. Tikus Wistar jantan (n=30) dibagi menjadi lima kelompok (n=6 ekor/kelompok). Kelompok K- diberi pakan standar, kelompok K+ dan kelompok perlakuan (P1, P2, P3) diberikan *high fat high fructose diet* selama 21 hari pengkondisian tikus SM. Intervensi diberikan melalui sonde lambung selama 28 hari; minyak ikan patin dosis 0,08 ml/200gBB/hari diberikan ke P1, ekstrak kunyit dosis 5,04 mg/kgBB/hari diberikan ke P2 dan kombinasinya diberikan ke P3. *High fat high fructose diet* dilanjutkan hingga akhir intervensi pada K+, P1, P2, P3, kecuali K- yang terus diberikan pakan standar.

Hasil: Kadar TNF- α dan HOMA-IR menurun secara signifikan ($p < 0,05$) pada kelompok perlakuan (P1, P2, P3) dibandingkan K+.

Simpulan: Minyak ikan patin, ekstrak kunyit dan kombinasinya memperbaiki kondisi sindrom metabolik dengan mengurangi reaksi inflamasi dan resistensi insulin.

Kata Kunci: ekstrak kunyit, HOMA-IR, minyak ikan patin, sindrom metabolik, TNF- α

ABSTRACT

THE EFFECT OF CATFISH (*Pangasius hypophthalmus*) OIL, TURMERIC (*Curcuma longa* Linn.) EXTRACT AND THE COMBINATION ON TNF- α (TUMOR NECROSIS FACTOR- α) LEVELS AND HOMA-IR (HOMEOSTATIC MODEL ASSESSMENT OF INSULIN RESISTANCE) IN WISTAR RATS INDUCED HIGH FAT HIGH FRUCTOSE DIET

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Introduction: The pro-inflammatory mediator TNF- α is strongly correlated with insulin resistance in metabolic syndrome. One potential strategy to improve inflammation and insulin resistance is the daily consumption of omega-3 (EPA and DHA) in catfish oil and polyphenolic compounds from turmeric extract.

Objective: To analyze the effect of catfish oil, turmeric extract and the combination of the both on TNF- α and HOMA-IR levels in *Wistar* rats induced high fat high fructose diet.

Methods: randomized pre-post test with control group design. Male *Wistar* rats (n=30) were divided into five groups (n=6 animals/group). Group K- was given standard feed, group K+ and treatment groups (P1, P2, P3) were given high fat high fructose diet for 21 days of conditioning of metabolic syndrome rats. The intervention was administered via gastric tube for 28 days; catfish oil at a dose of 0,08 ml/200gBB/day was given to P1, turmeric extract at a dose of 5,04 mg/kgBB/day was given to P2 and the combination of both was given to P3. *High fat high fructose diet* was continued until the end of the intervention in K+, P1, P2, P3, except K- which continued to be fed with standard feed.

Results: TNF- α and HOMA-IR levels decreased significantly ($p < 0.05$) in the treatment groups (P1, P2, P3) compared to K+.

Conclusion: Catfish oil, turmeric extract and the combination improved metabolic syndrome condition by reducing inflammatory reactions and insulin resistance.

Keywords: HOMA-IR, metabolic syndrome, striped catfish oil, TNF- α , turmeric extract