

## INTISARI

**Latar Belakang:** Penyakit kardiovaskular merupakan penyebab kematian terbanyak (46,2%) baik di dunia maupun di Indonesia. Kejadian hiperlipidemia berperan penting sebagai faktor risiko kejadian ini. Kurkumin dan kuersetin merupakan dua senyawa yang diketahui memiliki efek antiaterosklerosis dan antihiperlipidemia serta banyak ditemukan di Indonesia. Namun, belum ada pembahasan mengenai perbandingan efektivitas pencegahan kadar kolesterol dan trigliserida antara kedua senyawa ini. Oleh karena itu, perlu dilakukan penelitian mengenai perbandingan pengaruh preventif pemberian kuersetin dan kurkumin terhadap kadar kolesterol dan trigliserida.

**Tujuan Penelitian:** Mengetahui perbedaan efek preventif pemberian kuersetin dan kurkumin dengan dosis 45mg/kg BB terhadap kadar kolesterol dan trigliserida pada tikus Wistar dengan pemberian diet tinggi lemak.

**Metode Penelitian:** Penelitian ini dilakukan selama 28 hari menggunakan 20 ekor tikus putih Wistar jantan, berat 154-200 gram dengan usia 8 minggu, dibagi dalam 4 kelompok (@5 ekor). Kelompok A mendapat pakan standar A.D.II dan Na-CMC 0,5%. Kelompok B mendapat tambahan mentega putih (lemak nabati) dan Na-CMC 0,5%. Kelompok C dan D masing-masing mendapatkan kuersetin dan kurkumin sebanyak 45 mg/kg BB dalam Na-CMC 0,5%. Kadar kolesterol dan trigliserida diukur sebanyak dua kali, sebelum dan setelah perlakuan. Data dianalisis menggunakan uji *One Way ANOVA* dan *Paired T-test*

**Hasil:** Didapatkan hasil akhir yang signifikan ( $p < 0,001$ ) pada kelompok kurkumin dan kuersetin terhadap kontrol positif. Hasil akhir kadar kolesterol pada kelompok kuersetin menjadi  $128,87 \pm 4,03$  mg/dL ( $\Delta 22,33\%$ ) dan trigliserida  $90,25 \pm 4,31$  mg/dL ( $\Delta 33,15\%$ ). Sementara pada kelompok kurkumin, didapatkan peningkatan hasil akhir kolesterol menjadi  $157,82 \pm 1,99$  mg/dL ( $\Delta 52,45\%$ ) dan trigliserida  $105,49 \pm 1,64$  mg/dL ( $\Delta 63,35\%$ ) jika dibanding dengan kontrol positif yang mengalami peningkatan kadar kolesterol menjadi  $233,46 \pm 6,19$  mg/dL ( $\Delta 119,82\%$ ) dan trigliserida menjadi  $134,36 \pm 4,20$  mg/dL ( $\Delta 87,40\%$ ). Kuersetin secara signifikan ( $p < 0,05$ ) mampu mencegah peningkatan kadar kolesterol 30,12% dan trigliserida 30,20% lebih rendah dibanding kurkumin.

**Kesimpulan:** Pemberian kuersetin dengan dosis 45mg/kg BB lebih efektif dalam pencegahan peningkatan kadar kolesterol dan trigliserida dibanding pemberian kurkumin dengan dosis 45mg/kg BB.

**Kata Kunci:** Kuersetin, kurkumin, kolesterol, trigliserida

### ABSTRACT

**Background:** Cardiovascular disease is the leading cause of death (46.2%) both globally and in Indonesia. Hyperlipidemia plays an important role as a risk factor for this event. Besides, Curcumin and quercetin are two compounds that are known to have effects of atherosclerosis and antihyperlipidemia which mostly found in Indonesia. However, there has been no discussion about comparison of effectiveness between these two compounds as prevention of cholesterol and triglycerides. Based on this situation, it is necessary to study about comparison of effectiveness between quercetin and curcumin against cholesterol and triglyceride levels.

**Objectives:** : To identify differences effect of 45mg/kg BW quercetin and curcumin against cholesterol and triglyceride levels in Wistar rats which administered by high-fat diet.

**Methods:** The study was conducted in 28 days using 20 male Wistar rats, weighing 154-200 grams at 8 weeks of age, were divided into 4 groups (@5 rats). Group A received a standard feed A.D.II and Na-CMC 0,5%. While group B received an addition of white butter (vegetable fat) and Na-CMC 0,5%. Group C and D each receive quercetin and curcumin as much as 45 mg/kg BW in Na-CMC 0,5%. Cholesterol and triglyceride were measured twice, before and after treatment. Statistical analysis was performed using *One Way ANOVA* dan *Paired T-test*.

**Result:** The results obtained cholesterol and triglyceride level of curcumin and quercetin group were significantly ( $p < 0.001$ ) lower against the positive control. The cholesterol levels of quercetin was  $128.87 \pm 4.03$  mg/dL ( $\Delta 22.33\%$ ) and triglycerides  $90.25 \pm 4.31$  mg/dL ( $\Delta 33.15\%$ ). While the group of curcumin, an increase were found in cholesterol level became  $157.82 \pm 1.99$  mg/dL ( $\Delta 52.45\%$ ) and triglycerides  $105.49 \pm 1.64$  mg/dL ( $\Delta 63.35\%$ ) when compared with positive controls that have elevated levels of cholesterol to  $233.46 \pm 6.19$  mg/dL ( $\Delta 119.82\%$ ) and triglycerides to  $134.36 \pm 4.20$  mg/dL ( $\Delta 87.40\%$ ). Quercetin was significantly ( $p < 0.05$ ) able to prevent the increase in cholesterol (30.12%) and triglycerides levels (30.20%) lower than curcumin.

**Conclusion:** Administration of quercetin 45mg/kg BW was more effective in preventing an increased cholesterol and triglyceride levels compared to administration of curcumin 45mg/kg BW.

**Keywords:** Quercetin, curcumin, cholesterol, triglyceride