

## ABSTRAK

Penelitian ini bertujuan untuk menguji efektivitas sediaan nanoemulsi ekstrak Chia seed (*Salvia hispanica*) terhadap kadar glukosa darah, ureum, kreatinin, serta gambaran histopatologi ginjal pada tikus putih (*Rattus norvegicus*) galur Wistar jantan yang diinduksi streptozotocin. Tikus diinduksi hiperglikemia dengan streptozotocin dosis 20 mg/kgBB selama lima hari berturut-turut, kemudian diberikan perlakuan selama 21 hari. Uji fitokimia menunjukkan bahwa ekstrak chia seed mengandung flavonoid, saponin, tanin, alkaloid, dan triterpenoid, serta asam lemak omega-3 yang memiliki aktivitas antidiabetik dan nefroprotektif. Hasil penelitian menunjukkan bahwa nanoemulsi konsentrasi 20% lebih efektif dibandingkan 10% dalam menurunkan kadar glukosa darah ( $103,16 \pm 11,33$  mg/dL), ureum ( $17,06 \pm 0,95$  mg/dL), dan kreatinin ( $0,35 \pm 0,09$  mg/dL), serta memperbaiki struktur glomerulus ginjal dengan tingkat kerusakan minimal. Analisis statistik (One-Way ANOVA,  $p < 0,05$ ) mengonfirmasi perbedaan signifikan antar kelompok. Temuan ini menunjukkan bahwa nanoemulsi ekstrak Chia seed konsentrasi 20% berpotensi menjadi agen terapi pendukung dalam mengendalikan hiperglikemia dan melindungi fungsi ginjal melalui aktivitas antioksidan dan antiinflamasi.

**Kata kunci:** Chia seed, *Salvia hispanica*, nanoemulsi, antidiabetes, nefroprotektif, histopatologi ginjal, streptozotocin.

## ABSTRACT

This study aimed to evaluate the effectiveness of chia seed (*Salvia hispanica*) extract nanoemulsion on blood glucose, urea, creatinine levels, and renal histopathology in male Wistar rats (*Rattus norvegicus*) induced with streptozotocin. Hyperglycemia was induced using streptozotocin at a dose of 20 mg/kgBW for five consecutive days, followed by 21 days of treatment. Phytochemical screening revealed the presence of flavonoids, saponins, tannins, alkaloids, and triterpenoids, as well as omega-3 fatty acids with antidiabetic and nephroprotective properties. The results showed that the 20% nanoemulsion was more effective than 10% in reducing blood glucose ( $103.16 \pm 11.33$  mg/dL), urea ( $17.06 \pm 0.95$  mg/dL), and creatinine ( $0.35 \pm 0.09$  mg/dL) levels, and improving kidney glomerular structure with minimal damage. Statistical analysis (One-Way ANOVA,  $p < 0.05$ ) confirmed significant differences among groups. These findings suggest that chia seed extract nanoemulsion at 20% concentration has potential as an adjuvant therapy for controlling hyperglycemia and protecting kidney function through antioxidant and anti-inflammatory activities.

**Keywords:** Chia seed, *Salvia hispanica*, nanoemulsion, antidiabetic, nephroprotective, kidney histopathology, streptozotocin.