ABSTRAK

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Latar Belakang: Obesitas dikaitkan dengan stres oksidatif, disbiosis mikrobiota usus, dan resistensi leptin. SCFA berperan dalam regulasi leptin dan metabolisme energi, sehingga peningkatannya berpotensi membantu pengelolaan obesitas. Dadih dan dangke sebagai produk fermentasi tradisional berpotensi meningkatkan kadar SCFA, namun daya terimanya masih rendah. Penambahan buah naga merah dan selenium diharapkan dapat meningkatkan kandungan prebiotik, antioksidan, serta efektivitasnya dalam menurunkan resistensi leptin.
Tujuan: Membuktikan perbedaan pengaruh dadih dan dangke dengan penambahan buah naga merah dan selenium terhadap kadar SCFA sekum dan leptin tikus obesitas.
Metode: Penelitian ini merupakan penelitian *true experimental* dengan desain *post test-only control group design*. Subjek dibagi menjadi 6 kelompok (5 ekor tikus tiap kelompok), yaitu kontrol negatif (K-), kontrol positif (K+), perlakuan 1 (P1, dadih), perlakuan 2 (P2, dangke), perlakuan 3 (P3, dadih dengan penambahan buah naga merah dan selenium), perlakuan 4 (P4, dangke dengan penambahan buah naga merah dan selenium). Intervensi diberikan selama 28 hari. Analisis kadar SCFA sekum menggunakan kromatografi gas dan analisis kadar leptin menggunakan ELISA.
Hasil: Pemberian dadih dan dangke dengan tambahan buah naga merah dan selenium secara signifikan meningkatkan kadar SCFA sekum pada tikus obesitas ($p < 0,05$), dengan kelompok P4 memiliki kadar SCFA tertinggi setelah kelompok sehat (K-). Kadar leptin juga berbeda signifikan antar kelompok ($p < 0,05$), di mana kelompok yang menerima intervensi menunjukkan penurunan kadar leptin dibandingkan kelompok obesitas tanpa perlakuan (K+), dengan efek terbaik pada P2 dan P4. Terdapat korelasi negatif sedang antara kadar total SCFA dan leptin ($p = 0,002$; $r = -0,545$) serta korelasi negatif kuat antara SCFA dan berat badan ($p = 0,000$; $r = -0,909$), menunjukkan bahwa peningkatan SCFA berpotensi menurunkan kadar leptin dan berat badan.
Kesimpulan: Pemberian dadih dan dangke dengan penambahan buah naga merah dan selenium meningkatkan kadar SCFA sekum dan menurunkan kadar leptin pada tikus obesitas, serta menunjukkan korelasi negatif antara SCFA dengan kadar leptin dan berat badan, sehingga berpotensi sebagai strategi dalam pengelolaan obesitas.

Kata Kunci: Obesitas, SCFA, leptin, dadih, dangke

ABSTRACT

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Background: Obesity is associated with oxidative stress, gut microbiota dysbiosis, and leptin resistance. Short-chain fatty acids (SCFAs) play a role in leptin regulation and energy metabolism, making their enhancement a potential strategy for obesity management. *Dadih* and *dangke*, as traditional fermented products, have the potential to increase SCFA levels, although their acceptability remains low. The addition of red dragon fruit and selenium is expected to improve their prebiotic and antioxidant content, as well as their effectiveness in reducing leptin resistance.
Objective: To evaluate the differences in the effects of *dadih* and *dangke* with the addition of red dragon fruit and selenium on cecal SCFA levels and leptin concentrations in obese rats.
Methods: This was a true experimental study with a post-test only control group design. Subjects were divided into six groups (five rats per group): negative control (K-), positive control (K+), treatment 1 (P1, *dadih*), treatment 2 (P2, *dangke*), treatment 3 (P3, *dadih* with red dragon fruit and selenium), and treatment 4 (P4, *dangke* with red dragon fruit and selenium). The intervention was given for 28 days. Cecal SCFA levels were analyzed using gas chromatography, and leptin concentrations were measured using ELISA.
Results: The administration of *dadih* and *dangke* supplemented with red dragon fruit and selenium significantly increased cecal SCFA levels in obese rats ($p < 0.05$), with the highest SCFA level observed in P4, following the healthy control group (K-). Leptin levels also showed significant differences between groups ($p < 0.05$), where intervention groups exhibited reduced leptin levels compared to the untreated obese group (K+), with the most pronounced effects in P2 and P4. A moderate negative correlation was found between total SCFA and leptin levels ($p = 0.002$; $r = -0.545$), and a strong negative correlation between SCFA and body weight ($p = 0.000$; $r = -0.909$), indicating that increased SCFA levels may reduce leptin levels and body weight.
Conclusion: Supplementation of *dadih* and *dangke* with red dragon fruit and selenium increases cecal SCFA levels and reduces leptin concentrations in obese rats. The negative correlation between SCFA levels, leptin, and body weight suggests its potential as a strategy for obesity management.

Keywords: Obesity, SCFA, leptin, dadih, dangke.