

RINGKASAN

Penyakit degeneratif termasuk penyakit kardiovaskular yang disebabkan oleh hiperkolesterolemia. Untuk menanganinya dapat dilakukan pengobatan statin, namun memiliki efek samping jika digunakan jangka panjang, sehingga diperlukan *supply* serat pangan dan antioksidan sebagai upaya alternatif. Salah satu produk fungsional yang dikembangkan yaitu yoghurt susu jagung dengan penambahan spirulina, isolat protein, dan bubuk kulit buah naga merah. Tujuan dari penelitian ini adalah: 1) Mengkaji karakteristik fisikokimia dan sensori yoghurt susu jagung dengan penambahan spirulina, isolat protein kedelai, dan bubuk kulit buah naga merah. 2) Mengkaji pengaruh pemberian yoghurt susu jagung dengan penambahan spirulina, isolat protein kedelai, dan bubuk kulit buah naga merah terhadap berat badan, tekanan darah, MDA, dan profil lipid tikus hiperkolesterolemia.

Penelitian ini dilakukan 2 tahap. Variabel yang diamati pada penelitian tahap 1 yaitu penyiapan yoghurt susu jagung meliputi sifat fisikokimia dan sensori yoghurt susu jagung dengan penambahan spirulina, isolat protein kedelai, dan bubuk kulit buah naga merah sebagai sampel pangan uji. Sifat fisikokimia yang diamati terdiri dari kadar protein, lemak, air, abu, karbohidrat, serat pangan, antioksidan, viskositas, sineresis, bakteri asam laktat (BAL), nilai pH, serta analisis sensori yoghurt susu jagung berupa uji hedonik meliputi warna, rasa, aroma, tekstur, dan kesukaan keseluruhan (*overall*). Variabel yang diamati dalam penelitian tahap 2 yaitu intervensi yoghurt susu jagung C1, C2, dan C4 pada tikus percobaan, meliputi berat badan tikus, pengukuran tekanan darah, kolesterol total plasma, trigliserida plasma, kadar HDL dan LDL plasma, dan kadar MDA.

Hasil penelitian tahap 1 pada karakteristik fisikokimia menunjukkan bahwa semakin tinggi penambahan bubuk kulit buah naga merah pada yoghurt susu jagung dengan spirulina dan isolat protein kedelai, maka akan semakin rendah kadar air, karbohidrat, sineresis, dan total bakteri asam laktat (BAL), namun akan semakin tinggi pada kadar abu, lemak protein, serat pangan, aktivitas antioksidan, viskositas, dan nilai pH. Sedangkan pada karakteristik sensori menunjukkan bahwa semakin banyak penambahan bubuk kulit buah naga merah, maka akan semakin rendah skor kesukaan panelis. Pada penelitian tahap 2 menunjukkan bahwa semakin tinggi penambahan bubuk kulit buah naga pada yoghurt susu jagung dengan spirulina dan isolat protein kedelai, maka akan semakin menurunkan resiko kenaikan badan berlebih dan memperbaiki profil lipid tikus hiperkolesterolemia.

SUMMARY

Degenerative diseases include cardiovascular diseases caused by hypercholesterolemia. Statin treatment can be used to manage this condition, but it has side effects when used long-term, so dietary fiber and antioxidants are needed as alternative measures. One functional product developed is corn milk yogurt with added spirulina, soy protein isolate, and red dragon fruit peel powder. The objectives of this study are: 1) To examine the physicochemical and sensory characteristics of corn milk yogurt with added spirulina, soy protein isolate, and red dragon fruit peel powder. 2) To examine the effects of corn milk yogurt with added spirulina, soy protein isolate, and red dragon fruit peel powder on body weight, blood pressure, MDA, and lipid profiles in hypercholesterolemic rats.

This study was conducted in two stages. The variables observed in stage 1 of the study were the preparation of corn milk yogurt, including the physicochemical and sensory properties of corn milk yogurt with the addition of spirulina, soy protein isolate, and red dragon fruit peel powder as food samples. The physicochemical properties observed included protein content, fat, moisture, ash, carbohydrates, dietary fiber, antioxidants, viscosity, syneresis, lactic acid bacteria (LAB), pH value, and sensory analysis of corn milk yogurt in the form of hedonic testing, including color, taste, aroma, texture, and overall preference. The variables observed in the second phase of the study, which involved the intervention of corn milk yogurt C1, C2, and C4 on experimental mice, included mouse body weight, blood pressure measurements, total plasma cholesterol, plasma triglycerides, plasma HDL and LDL levels, and MDA levels.

The results of phase 1 research on physicochemical characteristics indicate that the higher the addition of red dragon fruit peel powder to corn milk yogurt with spirulina and soy protein isolate, the lower the water content, carbohydrates, syneresis, and total lactic acid bacteria (LAB) content, but the higher the ash content, protein fat, dietary fiber, antioxidant activity, viscosity, and pH value. Meanwhile, sensory characteristics indicate that the more red dragon fruit peel powder is added, the lower the panelists' liking scores. In the second phase of the study, it was found that the higher the addition of red dragon fruit peel powder to corn milk yogurt with spirulina and soy protein isolate, the lower the risk of excessive weight gain and the better the lipid profile of hypercholesterolemic rats.