RASIO TEPUNG SORGUM DAN *Spirulina platensis* PADA FORMULASI *FLAKES* TERHADAP KARAKTERISTIK MINUMAN SEREAL INSTAN DIPERKAYA PROBIOTIK *Lactiplantibacillus plantarum* Dad-13

INTISARI

Anak usia 5-12 tahun masih mengonsumsi gizi di bawah kebutuhan minimal. Kondisi tersebut juga dapat menyebabkan ketidakseimbangan mikroflora usus. Mengonsumsi kudapan tinggi protein dan serat seperti mengandung *Spirulina platensis*, tepung sorgum, dan probiotik bisa menjadi solusi. Oleh karena itu, dalam penelitian ini dibuat *flakes* dalam minuman sereal instan dengan probiotik *Lactiplantibacillus plantarum* Dad-13. Tujuan penelitian ini untuk mengevaluasi karakteristik fisikokimia minuman sereal instan probiotik, serta mengevaluasi viabilitas probiotik selama masa simpan pada berbagai suhu dan perhitungan pendugaan umur simpan. Penelitian ini menggunakan rancangan acak lengkap (RAL) non faktorial dengan tiga kali ulangan percobaaan. Faktor perlakuannya adalah konsentrasi antara tepung sorgum dan *Spirulina platensis* (50% dan 1%; 48% dan 3%; dan 46% dan 5%).Viabilitas probiotik dan umur simpan produk dievaluasi pada 3 suhu penyimpanan (20 ºC, 30 ºC, 37 ºC) selama 63 hari penyimpanan.

Hasil uji sensoris menunjukkan bahwa nilai rata-rata kesukaan (*overall*) ketiga formula berbeda signifikan. Formula terpilih yaitu konsentrasi antara tepung sorgum dan *Spirulina platensis* sebesar 50% dan 1% karena paling dapat diterima dengan nilai rata-rata 6,06 (suka). Terdapat perbedaan signifikan antara kadar abu, protein, lemak, karbohidrat, dan serat pangan antar ketiga formula. Formula terpilih mengandung kadar air 3,14±0,10%, kadar protein 12,56±0,06%, kadar abu 2,85±0,04%, kadar lemak 4,98±0,48%, karbohidrat 79,65±0,53%, dan total kalori 407,01±5,42 kkal. Produk ini berkontribusi 6,70% dari AKG protein harian dan dapat menjadi kudapan yang baik bagi anak karena dapat menjadi sumber protein (12,56g/100 g) dan sumber serat (4,68g/100g). Produk yang disimpan pada suhu 20 ºC memiliki viabilitas sel paling tinggi yaitu masih di atas 10^7 log CFU/g selama masa penyimpanan dengan umur simpan yaitu 4 bulan 25 hari. Umur simpan pasa suhu 30 ºC dan 37 ºC yaitu 2 bulan 17 hari, dan 1 bulan 21 hari.

Kata kunci : minuman sereal, *Spirulina platensis*, tepung sorgum, *Lactiplantibacillus plantarum* Dad-13

THE RATIO OF SORGHUM FLOUR AND *Spirulina platensis* in FLAKES FORMULATION ON THE CHARACTERISTICS OF INSTANT CEREAL DRINK ENRICHED WITH PROBIOTIC *Lactiplantibacillus plantarum* Dad-13

ABSTRACT

Children between the ages of 5 and 12 still do not have the minimum dietary requirements. It can also cause an imbalance of the intestinal microflo. Consuming protein- and fiber-rich snacks made from *Spirulina platensis* and sorghum flour that contain probiotics may be a viable solution. In this study, flakes were added to instant cereal drinks with the probiotic *Lactiplantibacillus plantarum* Dad-13. The aims of this study were to evaluate the characteristics of probiotic instant cereal drinks, to assess product viability during shelf-life, and to calculate shelf-life predictions. The non-factorial completely randomized design involved three replications of the study. The treatment factor is the concentration of sorghum flour and *Spirulina* (50% dan 1%; 48% dan 3%; dan 46% dan 5%). Probiotic viability and product shelf life were assessed at three different temperatures (20 °C, 30 °C, and 37 °C).

The sensory test showed that the average preference was significantly different. The most acceptable formula has a concentration of sorghum flour and *Spirulina platensis* of 50% and 1%, with an average value of 6,06 (like). Furthermore, there were significant differences in the content of ash, protein, fat, carbohydrate and fiber among the three formulas. The formula selected contained 3,14±0,10% water, 12,56±0,06% protein, 2,85±0,04% ash, 4,98±0,48% fat, 79,65±0,53% carbohydrates, and 407,01±5,42 kcal energy total. This product provides 6,70% of the protein daily recommended dietary allowance and is suitable as a snack for children due to its protein content (12,56/100 g) and fiber content (4,68g/100g). Products stored at 20 °C exhibited the highest cell viability, which remained above 10^7 log CFU/g throughout storage and had a shelf life of up to 4 months 25 days. Meanwhile, at 30 ºC, 2 months 17 days and at 37 ºC, 1 month 21 days.

Keywords: cereal drink, *Lactiplantibacillus plantarum* Dad-13, sorghum flour, *Spirulina platensis*.