

**PENGARUH BAHAN KEMASAN DAN LAMA PENYIMPANAN
TERHADAP KUALITAS FISIKO-KIMIA DAN VIABILITAS
MIKROBIA KEFIR *POWDER* DENGAN
METODE *SPRAY DRYING***

**Septiyanto Lukman Widodo
21/479869/PT/08987**

INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh bahan kemasan, lama penyimpanan, serta interaksi antara penggunaan bahan kemasan dan lama penyimpanan berbeda terhadap kualitas fisiko-kimia dan viabilitas mikrobia kefir *powder* hasil *spray drying*. Rancangan percobaan yang digunakan adalah Rancangan Acak Lengkap pola Faktorial (2x6). Faktor ke-1 adalah bahan kemasan yaitu kemasan kertas dan *aluminium foil*. Sedangkan faktor ke-2 adalah lama penyimpanan yaitu 0, 1, 2, 4, 8, dan 12 minggu. Data dianalisis menggunakan analisis ragam (ANOVA) dan jika menunjukkan perbedaan pengaruh nyata dilakukan uji lanjut dengan *Duncan's New Multiple Range Test* (DMRT). Hasil analisis statistik menunjukkan bahwa penggunaan bahan kemasan berbeda memberikan pengaruh nyata ($P < 0,05$) terhadap *wettability*, *chroma* (tingkat kemerahan dan tingkat kekuningan), kadar air, kadar abu, dan aktivitas air tetapi tidak memberikan pengaruh nyata ($P > 0,05$) terhadap *chroma* (tingkat kecerahan), total bakteri asam laktat (BAL), dan *yeast*. Hasil analisis statistik menunjukkan bahwa penyimpanan berbeda memberikan pengaruh nyata ($P < 0,05$) terhadap *wettability*, *chroma* (tingkat kekuningan), kadar air, kadar abu, dan aktivitas air, total BAL, dan *yeast* tetapi tidak memberikan pengaruh nyata ($P > 0,05$) terhadap *chroma* (tingkat kecerahan dan tingkat kemerahan). Hasil analisis statistik menunjukkan bahwa interaksi antara penggunaan bahan kemasan dan penyimpanan berbeda memberikan pengaruh nyata ($P < 0,05$) terhadap *wettability*, *chroma* (tingkat kemerahan dan tingkat kekuningan), kadar air, kadar abu, dan aktivitas air tetapi tidak memberikan pengaruh nyata ($P > 0,05$) terhadap *chroma* (tingkat kecerahan), total BAL, dan *yeast*. Secara umum hasil analisis bahan kemasan *aluminium foil* lebih baik dibandingkan bahan kemasan kertas, lama penyimpanan paling baik dilakukan pada 4 minggu untuk bahan kemasan kertas dan 8 minggu untuk kemasan *aluminium foil*, serta secara umum interaksi antara penggunaan bahan kemasan dan lama penyimpanan berbeda saling mendukung.

Kata kunci: Kefir *powder*, Kemasan kertas, Kemasan *aluminium foil*, Kualitas fisiko-kimia, dan Viabilitas mikrobia

THE EFFECT OF PACKAGING MATERIALS AND STORAGE DURATION ON THE PHYSICO-CHEMICAL QUALITY AND MICROBIAL VIABILITY OF KEFIR *POWDER* USING THE *SPRAY DRYING* METHOD

Septiyanto Lukman Widodo
21/479869/PT/08987

ABSTRACT

This study aims to determine the effect of packaging materials, storage time, and the interaction between the use of different packaging materials and storage time on the physicochemical quality and microbial viability of *spray-dried kefir powder*. The experimental design used was a Completely Randomized Design with a Factorial pattern (2x6). The first factor was the packaging material, namely paper and *aluminium foil* packaging. While the second factor was the storage time, namely 0, 1, 2, 4, 8, and 12 weeks. Data were analyzed using analysis of variance (ANOVA) and if it showed a significant difference, further testing was carried out using *Duncan's New Multiple Range Test* (DMRT). The results of statistical analysis showed that the use of different packaging materials had a significant effect ($P < 0.05$) on *wettability*, *chroma* (level of redness and level of yellowness), water content, ash content, and water activity but did not have a significant effect ($P > 0.05$) on *chroma* (level of brightness), total lactic acid bacteria (LAB), and *yeast*. The results of statistical analysis showed that different storage conditions had a significant effect ($P < 0.05$) on *wettability*, *chroma* (level of yellowness), water content, ash content, and water activity, total LAB, and *yeast* but did not have a significant effect ($P > 0.05$) on *chroma* (level of brightness and level of redness). The results of statistical analysis showed that the interaction between the use of different packaging materials and storage conditions had a significant effect ($P < 0.05$) on *wettability*, *chroma* (level of redness and level of yellowness), water content, ash content, and water activity but did not have a significant effect ($P > 0.05$) on *chroma* (level of brightness), total LAB, and *yeast*. In general, the results of the analysis of *aluminium foil* packaging materials are better than paper packaging materials, the best storage time is 4 weeks for paper packaging materials and 8 weeks for *aluminium foil* packaging, and in general, the interaction between the use of different packaging materials and storage times supports each other.

Keywords: Kefir *powder*, Paper packaging, *Aluminium foil* packaging, Physico-chemical quality, and Microbial viability