

**KUALITAS FISIKO-KIMIA DAN MIKROBIOLOGIS KEFIR SUSU
KAMBING MENGGUNAKAN KULTUR TUNGGAL *Kluyveromyces
marxianus* KFA3 DAN KOMBINASI DENGAN *Lacticaseibacillus
paracasei* M104**

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INTISARI

Penelitian ini bertujuan untuk membandingkan kualitas fisiko-kimia dan mikrobiologis kefir susu kambing dengan penggunaan kultur berbeda. Penelitian dilakukan menggunakan Rancangan Acak Lengkap (RAL) pola searah dengan 3 perlakuan masing-masing kefir dengan kultur *starter* berbeda dilanjutkan dengan uji kualitas fisiko-kimia, mikrobiologis, serta organoleptik. Perlakuan yang digunakan adalah penggunaan kultur kefir *grain* “Kefira”, kultur tunggal *Kluyveromyces marxianus* KFA3, dan kultur kombinasi *Kluyveromyces marxianus* KFA3 dan *Lacticaseibacillus paracasei* M104. Kefir dibuat dengan inokulasi kultur kefir *grain* 5% (kontrol) (b/v), dengan inokulasi *Kluyveromyces marxianus* KFA3 5% (v/v), dan kombinasi *Kluyveromyces marxianus* KFA3 dengan *Lacticaseibacillus paracasei* M104 5% (v/v). Data pengujian fisiko-kimia dan mikrobiologis dianalisis menggunakan *One-way ANOVA* dan hasil signifikan dilakukan pengujian lanjutan *Duncan’s New Multiple Range Test* (DMRT). Data pengujian organoleptik dianalisis menggunakan uji *Kruskal Wallis* dan hasil signifikan dilakukan pengujian lanjutan *Mann-Whitney U Test*. Hasil analisis didapatkan bahwa perbedaan kultur *starter* berpengaruh nyata ($P < 0,05$) terhadap viskositas, sineresis, kadar air, total *solid*, pH, keasaman, kadar alkohol, asam organik, dan total bakteri asam laktat. Hasil analisis uji organoleptik didapatkan bahwa perbedaan kultur *starter* berpengaruh nyata ($P < 0,05$) terhadap tingkat kesukaan konsumen pada parameter rasa dan kekentalan. Hasil penelitian menunjukkan bahwa kefir dengan *starter* kefir *grain* memiliki keunggulan dalam hal viskositas, sineresis, kadar air, total *solid*, pH, keasaman dan asam organik sedangkan kefir dengan *starter* tunggal *K. marxianus* KFA3 unggul dalam hal total *yeast* serta kefir dengan *starter* kombinasi *K. marxianus* KFA3 dan *L. paracasei* M104 unggul dalam nilai total BAL. Kefir dengan *starter* kefir *grain* memiliki kualitas fisiko-kimia dan organoleptik paling baik dibandingkan dengan kefir dengan *starter* kultur tunggal dan kultur kombinasi.

Kata kunci: Kefir, Susu kambing, *Kluyveromyces marxianus*, *Lacticaseibacillus paracasei*, Kualitas.

PHYSICO-CHEMICAL AND MICROBIOLOGICAL QUALITIES OF GOAT MILK KEFIR USING SINGLE CULTURE OF *Kluyveromyces marxianus* KFA3 AND COMBINATION WITH *Lacticaseibacillus paracasei* M104

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ABSTRACT

This study aims to compare the physicochemical and microbiological quality of goat milk kefir produced using different starter cultures. The experiments were conducted using a Completely Randomized Design (CRD) with three treatments, each with different starter cultures. The quality of kefir produced was evaluated for physicochemical, microbiological, and organoleptic properties with three replications. The treatments included the use of "Kefira" kefir grains, a single culture of *Kluyveromyces marxianus* KFA3, and a combination of *Kluyveromyces marxianus* KFA3 and *Lacticaseibacillus paracasei* M104. Kefir was prepared by inoculating 5% (w/v) kefir grains (control), 5% (v/v) *Kluyveromyces marxianus* KFA3, and a combination of 5% (v/v) *Kluyveromyces marxianus* KFA3 with *Lacticaseibacillus paracasei* M104. The physicochemical and microbiological data were analyzed using One-way ANOVA, and significant results were further analyzed using Duncan's New Multiple Range Test (DMRT). The organoleptic data were analyzed using the Kruskal-Wallis test, and significant results were further analyzed using the Mann-Whitney U Test. The results of the analysis showed that different starter cultures had a significant effect ($P < 0.05$) on viscosity, sineresis, water content, total solid, pH, acidity, alcohol content, organic acid, and total lactic acid bacteria. The results of organoleptic test analysis showed that different starter cultures had a significant effect ($P < 0.05$) on the level of consumer liking on the parameters of taste and viscosity. The results showed that kefir with kefir grain starter had high quality on viscosity, syneresis, water content, total solid, pH, acidity and organic acid, whilst kefir with single starter *K. marxianus* KFA3 had high quality on total yeast value and kefir with combination starter *K. marxianus* KFA3 and *L. paracasei* M104 had high quality on total LAB. Kefir with kefir grain starter had the best physico-chemical and organoleptic quality compared to kefir with single culture and combination culture starter

Keywords: Kefir, Goat milk, *Kluyveromyces marxianus*, *Lacticaseibacillus paracasei*, Quality.