KUALITAS FISIKO KIMIA, EVALUASI SENSORI DAN MIKROSTRUKTUR *SNACK* SUSU YANG DIPROSES SECARA *DEEP FAT FRYING* PADA TEKANAN ATMOSFER DAN KONDISI VAKUM

INTISARI

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Penelitian ini bertujuan untuk mendapatkan imbangan yang tepat antara *curd* dan campuran tepung sebagai bahan pengisi dalam pembuatan *snack* susu yang digoreng secara *deep fat frying* pada tekanan atmosfer dan mengevaluasi pengaruh perbedaan suhu dan waktu penggorengan terhadap kualitas fisik, kimia, sensori dan mikrostruktur *snack* susu yang digoreng pada kondisi vakum. Penelitian tahap pertama menentukan imbangan persentase yang tepat antara *curd* : campuran tepung pada penggorengan dengan tekanan atmosfer, terdiri dari empat perlakuan yaitu 0% : 100%, 20% : 80%, 30% : 70% dan 40% : 60% yang dianalisis menggunakan rancangan acak lengkap pola searah. Penelitian tahap kedua, *snack* susu perlakuan terbaik digoreng secara vakum dengan dua faktor perlakuan yaitu suhu penggorengan pada 70, 80 dan 90 ºC selama 10, 20 dan 30 menit yang dianalisis menggunakan rancangan acak lengkap pola faktorial. Variabel yang diuji meliputi sifat fisik (kerenyahan, daya kembang), sifat kimia (kadar air, kadar protein kasar, kadar lemak), evaluasi sensori (warna, rasa, kerenyahan, *oily after taste*) dan mikrostruktur (*snack* susu yang digoreng pada tekanan atmosfer dan kondisi vakum). Hasil penelitian menunjukkan bahwa penambahan *curd* memberikan pengaruh nyata (P<0,05) terhadap kerenyahan, daya kembang, kadar air, kadar protein kasar, kadar lemak dan evaluasi sensori *snack* susu yang digoreng pada tekanan atmosfer. Suhu penggorengan vakum yang berbeda memberikan pengaruh nyata (P<0,05) terhadap kerenyahan, daya kembang, kadar air, kadar protein kasar, kadar lemak dan evaluasi sensori *snack* susu. Lama penggorengan vakum yang berbeda memberikan pengaruh nyata (P<0,05) terhadap kerenyahan, daya kembang, kadar air dan kadar lemak, tetapi tidak berbeda terhadap kadar protein kasar dan evaluasi sensori *snack* susu yang dihasilkan. Kualitas mikrostruktur *snack* susu yang digoreng pada kondisi vakum lebih baik jika dibandingkan dengan penggorengan pada tekanan atmosfer ditinjau dari profil gelatinisasinya. Kesimpulan dari penelitian ini adalah *snack* susu yang digoreng secara *deep fat frying* pada tekanan atmosfer dengan imbangan persentase *curd* : campuran tepung sebanyak 40% : 60% menghasilkan *snack* susu yang memiliki sifat fisik, sifat kimia dan evaluasi sensori yang lebih baik jika dibandingkan dengan *snack* yang berbahan tepung-tepungan saja. Penggorengan vakum kurang relevan untuk menggoreng *snack* susu karena menghasilkan kualitas sensori yang kurang disukai meskipun memiliki kualitas fisik dan kimia yang masih memenuhi standar mutu produk goreng. Perbedaan metode, suhu dan lama penggorengan memberikan pengaruh terhadap mikrostruktur *snack* susu ditinjau dari profil gelatinisasi pati, rongga-rongga udara yang terbentuk dan sebaran *curd* di dalam produk.

Kata kunci : Fisiko kimia, Evaluasi sensori, Mikrostruktur, *Snack* susu, *Deep fat frying*, Tekanan atmosfer, Vakum

PHYSICO CHEMICAL, SENSORY EVALUATION AND MICROSTRUCTURE QUALITY OF MILK SNACK THAT PROCESSED USING DEEP FAT FRYING AT ATMOSPHERIC PRESSURE AND VACUUM CONDITION

ABSTRACT

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This research was conducted to find the right balance between curd and mix flours as filler in the manufacture of milk snack that processed using deep fat frying at atmospheric pressure and evaluate the effects of different temperature and frying time on the physic, chemical, sensory and microstructure of milk snack that fried at vacuum frying. The first phase of the research were determine the appropriate balance between curd : mix flours that fried at atmospheric pressure, consist of four treatments were 0% : 100%, 20% : 80%, 30% : 70% and 40% : 60% were analyzed with oneway annova. In the second phase, the best treatment of milk snack would be fried at vacuum frying by two factors, frying temperature at 70, 80 and 90 ºC for 10, 20 and 30 minutes were analyzed used factorial complete randomized design. The variables measured were physical properties (crispness, expand volume), chemical properties (moisture, crude protein, fat), sensory evaluation (color, taste, crispness, oily after taste) and microstructure (milk snack were fried at atmospheric pressure and vacuum conditions). The results showed that the addition of curd were significant ($P<0.05$) against crispness, expand volume, moisture, crude protein, fat and sensory evaluation of milk snack that fried at atmospheric pressure. Difference temperature of vacuum fried were significant ($P<0.05$) against crispness, expand volume, moisture, crude protein, fat and sensory evaluation of milk snack. Difference time of vacuum fried were significant ($P<0.05$) against crispness, expand volume, moisture and fat, but not significant to the levels of crude protein and sensory evaluation of milk snack. The microstructure quality of milk snack that fried under vacuum conditions were better than fried under atmospheric pressure in terms of gelatinization profile. The conclusion of this research was the milk snack that fried using deep fat frying at atmospheric pressure with proportion of curd : mix flours as 40%: 60% has physical properties, chemical properties and sensory evaluation more better than snack that made from starch. Vacuum frying less relevant for frying milk snack because it produces less preferred sensory qualities despite it having physical and chemical quality standards of fried was products. Difference method, temperature and duration of frying give effect to the terms of the microstructure of milk snack starch gelatinization profile, air cavities are formed and distribution of curd in the product.

Keywords: Physico chemical, Sensory evaluation, Microstructure, Milk snack, Deep fat frying, Atmospheric pressure, Vacuum