THE APPLICATION OF CRUDE PALM OIL AS A REPLACEMENT FOR WHITE MARGARINE IN MAKING SOURDOUGH BREAD

APLIKASI MINYAK SAWIT MENTAH SEBAGAI PENGGANTI MARGARIN PUTIH DALAM PEMBUATAN ROTI ADONAN ASAM

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Declares that Thesis entitled “THE APPLICATION OF CRUDE PALM OIL AS A REPLACEMENT FOR WHITE MARGARINE IN MAKING SOURDOUGH BREAD” is truly my original work to fulfill the requirement for obtaining the bachelor degree in Soegijapranata Catholic University, Semarang. As long as I know, there is none work or opinion that had been written or published by another people, except those mentioned in references. If someday part or whole of this Thesis is proved and found as plagiarism, then I deserve to be canceled with any risk of its punishment as the regulation that applicable in Soegijapranata Catholic University and/or the applicable of legislation.

Semarang, June, 2015
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SUMMARY

Todate, bread has become a trend and popular food in Indonesia because it is availability and cheap. Bread has high content of carbohydrate but lack of micronutrient such as vitamin. Therefore, bread can be used to become healthy food with crude palm oil as replacement of white margarine as a shortening. One type of bread that can be used i.e. sourdough bread. Sourdough bread is healthier than yeast bread and it can improve aroma, taste and flavor. White margarine is one of important ingredients in bread making but it lack of vitamin A and vitamin E. Shortening is one of important ingredient to make sourdough bread such as white margarine. One of alternatives to substituted white margarine is crude palm oil. The objectives of this research is to know the application of crude palm oil as source vitamin A, vitamin E and antioxidant for substitution of white margarine in making sourdough bread also, to know the best formula of sourdough bread with different CPO level that can be accepted by consumer. The formulation between CPO and white margarine were 0:4(F4), 3:1(F3), 2:2(F2), 1:3 (F1), and 0:4 (Control). There were sensory analysis, physical analysis, chemical analysis during storage and total plate count. Physical analysis consists of color measurement, porosity, volume expansion, pore diameters, textures analysis. Chemical analysis during storage consists of vitamin E, vitamin A, and antioxidant activity. Four treatments and control were analyzed by hedonic sensory using 30 untrained panelist with parameters i.e. taste, aroma, colour, texture, and overall. The three preferred product and control were analyzed for physical analysis, chemical analysis and total plate count. For physical analysis there were no significant different for all parameters except color measurement. F4 treatment had the lowest value of lightness around 63.88±0.64. For chemical analysis for first day storage, F4 formulation has the highest value of antioxidant activity (32.49±0.61%), vitamin E (47.14±0.74 mg/kg), and vitamin A (31782.72±841.80). At the last day of storage, F4 still had the highest value of antioxidant activity (20.79±0.65%), vitamin E (32.21±0.81 mg/kg), and vitamin A (15431.25±550.30 IU). In total plate count, 3 formulation and control had no significant difference during storage.
RINGKASAN

Sekarang ini, roti sudah menjadi tren dan gaya hidup karena ketersediaannya dan harga yang murah. Roti mempunyai kandungan karbohidrat yang tinggi tetapi rendah kandungan mikronutrisi seperti vitamin. Karena itu, roti bisa menjadi makanan yang sehat dengan minyak sawit mentah sebagai pengganti margarin putih. Jenis roti yang bisa digunakan adalah roti dengan adonan asam. Roti dengan adonan asam lebih sehat dibandingkan dengan roti tawar dan dapat menambah aroma, rasa dan flavor. Margarin putih merupakan salah satu bahan yang penting dalam pembuatan roti tetapi mempunyai kandungan vitamin A dan vitamin E yang rendah. Shortening merupakan bahan yang penting dalam pembuatan roti contohnya adalah margarine putih. Salah satu alternatif untuk mengganti margarin putih adalah dengan minyak sawit mentah. Tujuan dari penelitian ini adalah untuk mengetahui aplikasi minyak sawit mentah untuk mengganti margarin putih sebagai sumber vitamin A, vitamin E dan aktivitas antioksidan. Formulasi antara minyak sawit mentah dan margarin putih adalah 4:0 (F4), 3:1 (F3), 2:2 (F2), 1:3 (F1), 0:4 (kontrol). Kemudian dilakukan analisa sensori, uji fisik, uji kimia selama penyimpanan dan total plate count. Uji fisik terdiri dari penentuan warna, porositas, volume pengembangan, diameter pori dan analisa tekstur. Uji kimia selama penyimpanan terdiri dari vitamin E, vitamin A dan aktivitas antioksidan. Keempat formulasi dan kontrol dilakukan analisa sensori secara hedonik menggunakan 40 panelis tidak terlatih dengan parameter rasa, aroma, tekstur, warna dan overall. Tiga yang baik dan kontrol akan dianalsia secara fisik, kimia dan total plate count. Untuk analisa fisik tidak terdapat beda yang signifikan untuk setiap perlakuan kecuali untuk penentuan warna. Formulasi F4 mempunyai nilai lightness yang paling kecil yaitu 63,88±0,64. Untuk pengujian kimia hari pertama penyimpanan, formulasi F4 mempunyai kandungan aktivitas antioksidan, vitamin E dan vitamin A yang tertinggi yaitu 32,49±0,61%, 47,14±0,74 μg/kg, dan 31782,72±841,80 IU. Pada hari terakhir penyimpanan formulasi F4 mempunyai kandungan antioksidan sebesar 20,79±0,65%, vitamin E sebesar32,21±0,81mg/kg,dan vitamin A sebesar 15431,25±550,30 IU. Pada pengujian total plate count, 3 formulasi dan kontrol tidak mempunyai beda yang nyata selama penyimpanan.
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