

Penelitian/Research

PEMANFAATAN AMPAS TAHU UNTUK TEPUNG TINGGI SERAT SEBAGAI ALTERNATIF BAHAN BAKU PANGAN FUNGSIONAL

The Utilization of Tofu Pressed Cake in The Production of High Dietary Fiber Flour as an Alternative of Functional Food Ingredient

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ABSTRACT High fiber tofu pressed cake as a by product on manufacturing tofu is possible to used for raw material on preparing alternative functional foo ingredient. This research was designed to study the manufacturing of high fiber flour from tofu pressed cake. The flur flow process char described as follow. The first flour processed from tofu fresh cake which then dried on drum dryer prior to be milled to become 60 mesh flour. The second one processed from tofu fresh cake which then pressed, sterilized, followed by soaking on sodium metabisulfit 3% for 40 minutes, pressing, fermentation using *Neurospora sitophila* mould (2,5% for 24 hours), freezing, drum drying and milling to become 60 mesh flour. The flour was then analyzed for physicochemical, functional and sensory properties. Soaking on sodium Metabisulfite 3% for 40minutes before drying increase whiteness. Soaking in sulfite and fermentation increased the flour solubility dietary fiber and decreased unsoluble dietary fiber. The fiber total content in the flour ranged from 46.75 up to 56.24 % (db) and the consumption of 25 g of the flour will contribute 50% of the fiber RDA (Recognice Daily Allowance).

Keywords : tofu press cake, sodium metabisulfit, *Neurospora sitophila*, high fibre flour.

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PENGARUH JENIS ARANG BAMBU DAN SUHU PIROLISASI TERHADAP KAKRakteristik ADSORPSI ISOTHERMAL ION H^+ , ADSORPSI CHLOROFORM DAN KONDUKTIVITAS LISRIK

The Effect of type of bamboo charcoal and pyrolyzation temperature on the isothermal adsorption of H^+ ion characterization, the chloroform adsorption and the electric conductivity

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ABSTRACT *The Study of the effect of three varieties of bamboo and pyrolyzation temperature of 400°C, 500 °C, 600 °C and 700 °C on the isothermal adsorption of H^+ , the adsorption of chloroform and the electrical conductivity of charcoal have been carried out. The Study was aimed to determine characteristic of charcoal to be measured of the adsorption isothermal ion H^+ by using acid solution of acetate 0,1 mole, the adsorption of chloroform and the electrical conductivity. There search result shown that the temperature of pyrolyzation excelsior, the adsorption isothermal ion H^+ and the chloroform excelsior but the electrics conductivity progressively lower for all bamboo types. The best of thermal adsorption of ion H Andong charcoal was $3,87 \times 10^{-6}$ mol/liter/g at the temperature pyrolyzation 600°C with value of Kl = 0,03351, Petung charcoal was $1,25 \times 10^{-5}$ mol/liter/g at the temperature pyrolyzation 400°C with value Kl = 0,02888 and the Korea charcoal was $5,34 \times 10^{-6}$ mol/liter/g at the temperature pyrolyzation 700°C with value of Kl = 0,02849 respectively. The best of chloroform adsorption for the Andong charcoal 262.0 %, the Petung charcoal 180,5 % and the Korea charcoal 125,7 % at temperature pyrolyzation 700°C. the best of electrical conductivity for the Korea charcoal and the Andong charcoal was ranged between 0,37 – 2,54 MΩ.*

Keywords: bamboo charcoal, characterization, electric conductivity, isothermal adsorption, pyrolyzation

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MEMPELAJARI PENGARUH PENAMBAHAN BUTYLATED HYDROXY TOLUENE (bht) TERHADAP MUTU MINYAK JARAK KASAR HASIL EKSTRAKSI, DEGUMMING DAN PEMUCATAN

Study on Additional Effect of Butylated Hydroxy Toluene (BHT) on Extraction Quality of crudel, Degummed and Bleached Castor Oil

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ABSTRACT *The Study of additional effect of butylated hydroxyl toluene (BHT) on extraction quality of crude, degummed and bleached castor oil has been conducted. This study was aimed at elaborating the effect of BHT addition on every castor oil processing step e.g. crude oil extraction, oil degumming and oil bleaching. Such results were compared to those without BHT addition. To know the quality reduction of these oil extraction some parameters were treated namely FFA level and peroxide value. The BHT concentrations applied were 0,1 and 0,2 % and the effect of these addition were monitored during 4 hours with 1 hour testing interval. The results shows that FFA level and peroxide value on bleaching step were lower than those of crude oil extraction and degumming process. However, antioxidant of BHT and these data is very useful to know earlier if the oil processed can be processed better further and to prevent unwanted product.*

Keywords: refine bleached deodorized castor oil, antioxidant, BHT, free fatty acid and peroxide value.

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**ISOLASI EUGENOL DAN β -KARIOFILENA DARI MINYAK DAUN CENGKEH
(*Syzygium aromaticum* L).**

Isolation of Eugenol and β -Caryophyllene From Clove Leaf Oil

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ABSTRACT Clove leaf oils is one of the eugenol and β -Caryophyllene source essential oils commonly use for chemicals farmacies, fragrance and food industries. The problem of clove leaf oil is poor quality i.e. low eugenol content and dark brown color, result in price low price. One alternative of increasing its quality and value is by chemical deterpenation method. This method include aging period treatment after reacted with sodium hydroxide for 12 and 24 hour. Eugenol and β -Caryophyllene contents was analysed by Gas Chromatography. The eugenol content extracted from this method was compared with imported eugenol products i.e containing 95 % - 99,2 % with 70,09 % (v/v) yield, aging of 12 hour result in eugenol content 80% - 84 % and 50,22 % (v/v) yield. This method also result in β -Caryophyllene extrac as side product, aging of 24 hour result in the highest content of β -Caryophyllene i.e 80% - 85 % with 25,2 % (v/v) yield, whereas 12 hour aging result in β -Caryophyllene content of 62 % - 64 % and 24,01 % (v/v) yield.

Keywords: clove leaf oil, isolation, deterpenation, eugenol, β -Caryophyllene

Penelitian/Research

ANTI OKSIDAN ALAMI: SUMBER, KIMIA DAN TEKNOLOGI EKSTRAKSI

Natural Antioxidant: Source, Chemistry and Extraction Technology

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ABSTRACT Antioxidants are substances that when present in food or in the body at low concentrations compared to that of an oxidizable substrate markedly delay or prevent the oxidation of that substrate. The mechanism by which antioxidants protect food from oxidation is by scavenging of free radicals via donation of an electron or a hydrogen atom, or by deactivation of metal ions and singlet oxygen. Naturally occurring inhibitors of oxidation in food generally originate from plant-based materials. Antioxidants can be classified into groups based on how they work and where they are found. There have been a number of assay methods developed to measure the capacity of antioxidants as pure compounds or in extracts. These methods focus on different mechanisms. Of the antioxidant such as scavenging of oxygen and hydroxyl radical, reduction of lipid peroxy radicals, chelation of metal ions, or inhibition of lipid peroxidation. The very common methods used were: ORAC, OSI, DPPH and TEAC. There are three principle techniques that may be used to extract naturally occurring antioxidant: extraction using solvent, solid-phase extraction and supercritical CO₂ extraction.

Keywords: Natural antioxidant, source, chemistry, extraction technology, capacity assay.