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Penelitian / *Research*

EFEKTIVITAS ARANG BAMBU SEBAGAI FILTER ASAP ROKOK

The Effectiveness of Bamboo Charcoal as a Cigarette Smoke Filter

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ABSTRACT: *Research on effectiveness of using bamboo charcoal for cigarette smoke filter has been conducted. The aim of research was to investigate the characteristics of bamboo charcoal as a cigarette smoke filter. The results show the type of bamboo charcoal Andong and Betung as well as particle size give no significance influence on benzene and chloroform adsorption, while in contrarily give significance influence on iodium adsorption. Using the cigarette filter added with bamboo charcoal Andong and Betung show the higher effectiveness on tar adsorption compare to nicotine adsorption. Bamboo charcoal filter Andong and Betung could increase 90% tar adsorption in cigarette smoke compare to tar adsorption by cigarette filter without bamboo charcoal added. While bamboo charcoal filter Andong and Betung could increase nicotine adsorption in cigarette smoke only 45% and 19% respectively compare to tar adsorption by cigarette filter without bamboo charcoal added. The size of mesh of bamboo charcoal filter Andong and Betung give the same level of influence on tar and nicotine adsorption. The lower the size of mesh the higher the effectiveness on tar and nicotine adsorption.*

Keywords*: bamboo charcoal Andong, bamboo charcoal Betung, benzene adsorption, chloroform adsorption, iodium adsorption, tar, and nicotine*

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Penelitian/*Research*

ACUTE AND SUBACUTE TOXICITY STUDIES OF PANDANUS CONOIDEUS (BUAH MERAH) EXTRACT OIL IN SPRAGUE DAWLEY RATS

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ABSTRACT: *Pandanus conoideus* is exclusively grown in Papua island and its neighbor areas and its fruit (Buah Merah) has been utilized as food supplement by the native Papuan people for a long period. Recently it was found that its extract oil (SBM) contains higher contents of carotenoids, especially a novel micronutrient beta-cryptoxanthin. We consider that SBM is a potent chemopreventive supplement against some types of cancer and provide health benefits for chronic diseases. In the present studies, we evaluated acute and subacute toxicities of SBM using Sprague Dawley rats. Oral acute toxicity of SBM using female rats was not observed and LD_{50} was more than 2 ml/kg. In subacute toxicity study, SBM was orally administered at 0.1, 0.3 and 1.0 ml/kg to male and female rats for consecutive 4 weeks. No findings associated with SBM were observed. We conclude that SBM is a safe food supplement.

Key words: *Pandanus conoideus*, Buah Merah, carotenoid, beta-cryptoxanthin, toxicity, Sprague Dawley rat

ABSTRAK: *Pandanus conoideus* secara eksklusif tumbuh di pulau Papua dan daerah tetangga dan buahnya (Buah Merah) telah digunakan sebagai suplemen makanan oleh orang asli Papua untuk jangka waktu lama. Baru-baru ini ditemukan bahwa sari minyak buah merah (SBM) mengandung karotenoid yang tinggi, terutama mikronutrien *novel* beta-cryptoxanthin. Kami menganggap bahwa SBM adalah suplemen *kemopreventif* kuat terhadap beberapa jenis kanker dan memberikan manfaat kesehatan untuk penyakit kronis. Dalam studi ini, telah dievaluasi toksisitas akut dan subakut SBM menggunakan tikus Sprague Dawley. Toksisitas oral akut SBM menggunakan tikus betina tidak diamati dan LD50 lebih dari 2 ml/kg. Dalam studi toksisitas subakut, pemberian SBM secara oral dengan 0,1; 0,3; dan 1,0 ml/kg untuk tikus jantan dan betina selama 4 minggu berturut-turut. Tidak ada temuan yang terkait dengan SBM diamati. Kami menyimpulkan bahwa SBM adalah suplemen makanan yang aman.

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Penelitian*/Research*

PENGARUH WAKTU PERSIAPAN ENSIM FERMENTASI TERHADAP MUTU *MODIFIED CASSAVA FLOUR (MOCAF)* YANG DIHASILKAN

The Influence of preparation time of Enzymes Fermentation for the Quality of Modified Cassava Flour (MOCAF)

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ABSTRACT: *Cassava (Manihot esculenta), also called yuca or cassava, is a native plant of South America. Cassava is used as an alternative staple food and source of carbohydrate. In Indonesia, one of cassava intermediate products is mokaf (modified cassava flour) which is made through fermentation using lactic acid bacteria. Methods in this research is by prepared mokaf with variation of pra-fermentation time which are 2 hours (S2) and 24 hours (S24 and P24) and studied their characteristics (moisture, fibre, ash, and flour characteristics including gelatinization characteristic, whiteness and gel strength). According to analysis' results, mokaf with different enzyme preparation time have same amylogram pattern. Mokaf with 2 hours enzyme preparation time has lower viscosity and gel strength. In proximate analysis' results, mokaf with 2 hours enzyme preparation time have a tendency of smaller levels of ash and crude fiber, but higher protein. The best treatment for mocaf preparation is 24 hours pra-fermentation followed with fermentation and spinning process before drying, which produce mokaf with 0,51% ash, 1,88% crude fiber, 0,86% protein, and 0,66% fat .*

Keywords: *cassava, fermentation, lactic acid bacteria, modified cassava flour, mokaf*

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KARAKTERISASI TEPUNG UBI JALAR

The Characterization of Sweet Potato Flour

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ABSTRACT: *Research on the improvement of sweet potato flour processing and characterization of the product had been conducted. The aims of this research was to reduce the enzymatic reactions for sweet potato with the improvement of flour processing, and to characterize of the product. The steps of this research were include (1) The processing of flour by immersed of raw materials in warm water and drying at temperature 50, 60, 70℃ (2) Proximate analysis of the product including moisture, ash, protein, fat, crude fiber, carbohydrate content and energy value, (3) Analysis and characterization of their physicochemical including yields, speeds of drying, viscosity, the microscopic of starch granule, white degree value and gel strength. The results showed that the flour had low a maximum viscosity, the shapes of their granule were polygonal, circles, ovals and their size were varied. From this research, it shown that immersed of raw material in hot water had been reduced an enzymatic browning reaction to flour of sweet potato and the drying temperature was not effect to the sweetpotato flour. White degree value was 80,3 in 0-110 scales or 72,97%. Furthermore, the product of sweet potato flour had moisture, ash, protein, fat, crude fiber, carbohydrate content, and energy value, 9,03%; 2,27%; 13,6%; 0,44%; 0,90%; 74,7%, dan 357 cal/100g, respectively.*
Key words: sweet potato flour, enzymatic browning reaction, viscosity, whiteness

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Ulasan Ilmiah/*Review*

BAKTERIOSIN: PENGAWET ALAMI ASAL BAKTERI ASAM LAKTAT. KLASIFIKASI, TEKNIK SKRINING DAN PURIFIKASI SERTA PELUANG APLIKASINYA PADA INDUSTRI PANGAN

Bacteriocin: Bio preservatives from Lactic Acid Bacteria. Classifications, Screening and Purification Technique, and Its Application in Food Industry

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ABSTRACT: *Lactic acid bacteria (LAB) are known to have an antagonistic activity toward a variety of microorganisms. Bacteriocin production from LAB is one of the properties responsible for the antibacterial activity against closely related species and possibly gram-positive food spoilers and pathogens. Bacteriocins produced by lactic acid bacteria are either small thermostable peptides or large thermolabile proteins. Large numbers of bacteriocin producers have been found among different genera of the lactic acid bacteria. The diffusion method of bacteriocins on solid medium or antagonistic method as direct method and spot on the lawn and flip streak methods as indirect method can be used as screening method of bacteriocin. Purification methods of bacteriocins can used ammonium sulphate precipitation, ion exchange chromatography, hydrophobic interaction chromatography, and phase back high performance liquid chromatography. Bacteriocins are of interest for potential application in the food industry because of their antimicrobial activity and their technologically favorable properties.*

Keywords: Bacteriocin, Lactic Acid Bacteria, Biopreservatives, Antimicrobial Substances