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Penelitian/*Research*

PERBAIKAN TEKNOLOGI PENGOLAHAN DODOL JAMBU BIJI SKALA IKM
Improvement Technology of Dodol Guava Processing on Small and Medium Scale Industries

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***ABSTRACT**: Guava fruit (Psidium guajava L) is one of the potential horticulture to developed. The fresh guava fruit has a strong flavor and aroma, so it can be processed into various preserve products, such as 'dodol'. 'Dodol guava' is produced in several areas, from household industry (IRT) to Small Medium Enterprises (SMEs). The problem faced no exact formula, time of processing, a relatively short shelf life of 'dodol guava', so it makes there are not extensive marketing reach. The purpose of the research is to improve the quality of 'dodol guava' product produced by SMEs to get the right SOP processing. The method consisted of identification and study visits to SMEs, improved 'dodol guava' experiments, analysis and storage products, and evaluation of the technology and process of 'dodol guava'. By doing a production process in applying GMP conditions, using scalable production equipment to measured the time and temperature of processing, and the use of coconut milk is the best process of 'dodol guava' (processing C). Formula C are using a coconut milk (30%), liquid milk (16%), glutinous rice flour (15%), liquid brown sugar (35%), and sugar (35%). SOP of 'dodol guava' are the sortation, blanching (steaming), crushing, filtering, weighing fruit pulp and supporting materials, cooking, storage, cutting and forming, and packaging. Results of analysis of selected 'dodol guava' (process C) is a water content of 12.0%, ash content 1.08%, 2.01% crude fiber, the amount of sugar 53, 7%, ALT 40 colonies / g, molds and yeasts <10 colonies / g, and E. Coli <3 APM / g.*

Keywords: guava (Psidium guajava, L), dodol guava, and SMEs

RINGKASAN : Buah jambu biji (*Psidium guajava L*) adalah salah satu hasil hortikultura yang potensial untuk dikembangkan. Buah jambu biji segar mempunyai rasa dan aroma yang kuat, sehingga dapat diolah menjadi berbagai produk awetan, diantaranya adalah produk dodol. Produk dodol jambu biji sudah diproduksi di beberapa daerah, mulai dari skala Industri Rumah Tangga (IRT) sampai skala IKM. Masalah yang dihadapi pengrajin dodol adalah belum adanya formula yang tepat, penentuan kematangan dodol, waktu pemasakan yang terlalu lama serta daya awet dodol yang singkat, sehingga jangkauan pemasarannya tidak terlalu jauh. Tujuan penelitian yang dilakukan adalah meningkatkan mutu produk dodol jambu biji yang diproduksi pengrajin (skala IKM) dan mendapatkan *Standar Operational Procedur* (SOP) pengolahan dodol jambu biji yang tepat. Metoda penelitian terdiri dari kunjungan studi dan identifikasi ke pengrajin dodol jambu biji, percobaan perbaikan proses pengolahan dodol jambu biji**,** analisis dan penyimpanan produk dodol jambu biji, serta evaluasi teknologi dan proses pembuatan dodol jambu biji. Dengan melakukan proses produksi dalam kondisi menerapkan GMP , menggunakan peralatan produksi terukur suhu dan lama pemanasannya, serta penggunaan santan kelapa yang tidak mudah terhidrolisa dibandingkan minyak goreng, proses pengolahan dodol jambu terbaik adalah proses C. Formula proses pengolahan C adalah santan kental (30%), santan cair (16%), tepung ketan (15%), gula merah cair (35%), dan gula pasir (35%). SOP pengolahan dodol jambu biji meliputi proses sortasi, *blanching*, penghancuran, penyaringan, penimbangan bubur buah dan bahan penolong, pemasakan,kematangan produk ditandai adonan mudah dibalik, tidak lengket dan warna produk coklat, penyimpanan dalam suhu ruang selama 24 jam, pemotongan dan pembentukan, serta pengemasan. Hasil analisa mutu dodol jambu biji terpilih (proses C) adalah kadar air sebesar 12,0 %, kadar abu 1,08 %, serat kasar 2,01%, jumlah gula 53, 7 %, ALT 40 koloni/g, kapang dan khamir <10 koloni/g, dan *E. Coli* <3 APM/g.

Kata kunci: guava (Psidium guajava, L), dodol guava, dan IKM

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Penelitian/*Research*

OPTIMASI PROSES DEMINERALISASI, DEPROTEINISASI, DAN DEASETILASI KULIT UDANG UNTUK PEMBUATAN KHITOSAN LARUT DALAM AIR

The Optimation of Shrimp Shells Demineralisation, Deproteinisation, and Deasetilation on Water Soluble Chitosan Production

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ABSTRACT : *Shrimps shells still considered a solid waste (solid waste) and the problem of environmental pollution. Shrimp shell processing into high value-added products such as chitin and chitosan water soluble can expand its application in user industries.This study was aimed to obtain optimal condition for shrimp shells which resulted from quick frozen shrimps into water soluble chitosan (WSC). Stage of the process was conducted on the extraction of chitin (demineralization and deproteinasi), extraction of acid-soluble chitosan (ASC) (deacetylation), and manufacture of water-soluble chitosan. Demineralization of shrimp shells performed using 1 N HCl, the ratio (1:4), at a temperature of 70-75 °C. Deproteinisasi performed using NaOH 3.5%, ratio (1:4) at a temperature of 80-85 °C, the results of the deproteinisasi is chitin. Extraction of chitosan (deacetylation process) is done using NaOH 50%, ratio (1:20) at a temperature of 120-140 ^{o}C. Demineralization, deproteinization, and deacetilation were conducted for 4 and 6 hours. One treatment was also conducted to produce ASC by applying directly deacetilation NaOH 50 % at 140 ^{o}C without demineralization and deproteinization. For the WSC stage, ASC produced was then mixed with DMAc (dimethyl acetate), stored (for aging), separated, washed, dried, and blended. The best treatment is demineralization process step, deproteinisasi and deacetylation for 4 hours, wiyh ASC yield of 28.33% and WSC 15.46%. As for the process of direct deasetilisasi, produced the greatest yield for 4 hours of processing time, the acid-soluble chitosan 41.67% and 22.97% water soluble chitosan. The best characteristics of WSC was expressed in term of solubility (5 mg WSC/250 mL water), moisture content (10,0 %), mineral or ash content (0.16 %), nitrogen content (2.11%), viscosity (6 cps), and degree of deacetylation (64,75%).*

Keywords: water soluble chitosan, WSC, acid soluble chitosan, ASC, shrimp shell

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Penelitian / *Research*

PEMANFAATAN BIOAKTIF MIMBA UNTUK SEDIAAN ANTI SERANGGA

The Use of Bioactive Neem For Preparation Anti Insects

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ABSTRACT : *Nowadays, the use of natural plant source insecticides is one of the best chosen due to its characteristic, which of safer and easily degradable by nature (biodegradable) compared to synthetic materials. One of plant sources which consists of active components for insecticides is neem plant. This study aimed to determine the effect of extraction of active ingredients of neem seeds and leaves by fermentation using Effective Microorganisms (EM4). The extraction of seed and leaf neem to produce neem's active compound was conducted by using Effective Microorganisms. The efficacy test of the neem seed and leaf was conducted by using fermented extract concentrated of 3 % and 6 % and observed with interval of 2 to 6 days. The formula used in this experiment which A as raw material and B as concentration of Effective Microorganisms are A_1 as neem's seed, A_2 as neem's leaves; and B as concentration of Effective Microorganisms which is B_1 as 3 % concentration and B_2 as 6 % concentration. The extraction product were evaporated with rotary vacuum evaporator. The extracts obtained were tested their solubility. Azadirachtin were obtained on combination of A_1B_2 for neem,s seeds for 6 days fermentation period which acquired 1313,23 ppm (61,25 %) of azadirachtin and combination of A_2B_2 for neem's leaves which acquired 665,69ppm (69,17 %) of azadirachtin from raw materials. The active compounds were tested their ability as insecticide and showed that 50 ppm of azadirachtin concentration still effective for 14 days evaluation.*

Key words: neem, azadirachtin, extraction, Effective Microorganisms

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Penelitian */ **Research***

PENGKAJIAN LUMPUR AKTIF PADA LIMBAH CAIR INDUSTRI BIHUN SEBAGAI SUMBER MIKROBA DALAM PENGOLAHAN LIMBAH CAIR INDUSTRI PANGAN

The Study of Activated Sludge in Waste Water of Rice Noodle Industries as Source of Microbial for Food Industrial Waste Water Treatment.

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ABSTRAK : Dalam kegiatan produksi, industri pangan selalu menghasilkan limbah, baik berupa limbah padat, limbah cair maupun gas. Salah satu cara pengolahan limbah cair industri pangan adalah dengan cara biologi, menggunakan mikroorganisme selektif sesuai dengan karakteristik limbah industri pangan yang diolah. Pada kegiatan ini telah dilakukan penelitian penggunaan beberapa jenis starter yang berasal dari lumpur limbah cair yang berasal dari lndustri tahu, bihun dan roti. Penelitian ini bertujuan untuk mendapatkan produk starter mikroorganisme siap pakai dengan biaya murah. Penelitian dilakukan dengan menggunakan 3 faktor yakni A, B dan C dimana faktor A adalah jenis limbah cair, yaitu limbah cair industri tahu, limbah cair industri bihun dan limbah cair industri roti. Faktor B adalah jenis starter yang digunakan yakni lumpur aktif/sludge, phenobac dan kontrol. Sedangkan faktor C adalah waktu inkubasi, 0, 2, 4 dan 6 hari. Hasil penelitian menunjukan bahwa lumpur aktif dari industri bihun dapat digunakan untuk mengolah limbah industri pangan lainnya. Tingkat penurunan BOD tertinggi adalah perlakuan limbah cair industri tahu dengan menggunakan lumpur aktif industri bihun selama 6 hari dapat menurunkan BOD dari 2667,4 mg/l menjadi 941,2 mg/l (64,71 %). Untuk TSS tingkat penurunan tertinggi adalah air limbah bihun yang ditambah lumpur aktif selama 6 hari dari TSS awal 574,3 mg/l menjadi 96,3 mg/l atau terjadi penurunan TSS sebesar 83,23 %.

Key words : Lumpur aktif, BOD, TSS, phenobac, pH

ABSTRACT : *Industrial food processing are always produce waste water. One process of food industry wastewater treatment is a biological method, it is done by using microorganisms selectively according to the characteristics of the processed food industry waste. In this activity has been studied using sludge from food industrial wastewater, ie. tofu, noodles and bread Industries. This study aims to get the product microorganisms starter with low cost. This study used three factors, those are A factor is a type of liquid waste, industrial effluent ie A1 tofu, noodles and bread industry wastewater. Factor B is the type of starter used from sludge, phenobac and control, and factor C is incubation time, 0, 2, 4 6 days. The results showed that sludge from food industry can be used as starter for biological treatment in different wastewater food industries. The highest level of BOD reduction was the treatment of tofu industrial wastewater using activated sludge with 6 days incubation can reduce the BOD of 2667.4 mg / l to 941.2 mg / l (64.71%). For TSS reduction is the highest level of waste water activated sludge supplemented rice noodles for 6 days from initial TSS 574.3 mg / l to 96.3 or decreased by 83.23% TSS.*

Key words : activated sludge, BOD, TSS, phenobac, pH

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Ulasan ilmiah/ *Review*

PANGAN BIOFUNGSIONAL HIDROKOLOID DARI RUMPUT LAUT DAN APLIKASINYA DALAM INDUSTRI PANGAN

Hydrocolloids Biofunctional Food from Seaweeds and Its Applications in Food Industry

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ABSTRACT: *Hydrocolloids have a wide array of functional properties in foods. The most hydrocolloids from seaweeds are carrageenan, alginate and agar. Carrageenan and agar are sulfates polysaccharides mainly extracted from red seaweeds (Rhodophyceae) while alginate is extracted from brown seaweeds (Phaeophyceae). Gelidium and Gracilaria are the main seaweeds for commercially producing agar. Kappaphycus and Euchema species are the main seaweeds for commercialy producing carrageenan. Then, Laminaria and Sargassum species are the main brown algae for commercially producing alginate. Furthermore, hydrocolloids from seaweeds or marine hydrocolloids are applied in the food industry for their functional characteristics such as emulsifying, thickening, gelling, and stabilizing agent. All of these hydrocolloidsnamely, alginate, agar and carrageenan have received regulatory approvals from the European Council, the United States Food and Drug Administration, Food and Agriculture Organization, and Codex Alimantarius Commision.*

Keywords: Hydrocolloid, biofunctional food, seaweed, carrageenan, alginate, agar, food industry