

Penelitian/Research

MEMPELAJARI PENGARUH DELIGNIFIKASI DAN FERMENTASI TANGKAI BUNGA CENKIKH TERHADAP RENDEMEN DAN MUTU MINYAKNYA

Study in Effect Delignification and Fermentation of Clove Steam on The yield and Its Oil Quality

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ABSTRACT: *The aim of this study was to determine the effect of clove stem preparation (delignification and fermentation) on the yield and quality of clove stem oil. The clove stem (*Syzygium aromaticum*, L) were obtained from Institute for Research and Development of Medical Plants and Spices, Bogor meanwhile *Trichoderma viride* mold was taken from Center for Research an Development of Biology, Indonesia Institute of Science (LIPI) Bogor. It was dried until maximummoisture content of 12%. Experiment was conducted in two replications base on these treatments, i.e. delignification temperature (60 C, 80 C) and fermentation time (2, 4, 6 and 8 days). Sodium hydroxide solution (NaOh 0.5%) was used for delignification. The distillation process was conducted at 100 2 C during 6 hours and ambient pressure condition . The clove stem oil quality were analyzed for the yield, specific gravity at 25 C, rotary index and eugenol content. The results showed that increased of fermentation time was followed by decreased of the clove stem oil quality parameter. It was increased indicated that the best treatment in term of the yield and quality which about 5.62% (w/w), specific gravity 1.074, rotary index 1.545 and eugenol content 95.4 % was that treating clove stem with delignification at 60 C and fermentation time for 6 days. The clove stem oil produced using treatment of fermentation time were in the range of physico-chemical quality standard of clove oil given by SNI no. 06-2387-1998.*

Keywords : *Clove stem oil, delignification, fermentation, yield, quality.*

Penelitian/Research

**PROSES PIROLISASI BAMBU MELALUI PEMBAKARAN LANGSUNG
DENGAN MENGGUNAKAN TUNGKU BATU BATA TAHAN API**

The process of pyrolization Bamboo Through Direct Combustion by using Fire Brick Kiln

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ABSTRACT: *The study on Effect of Bamboo variety and pyrolization through direct combustion using a fire brick kiln model equipped with a condenser to produce charcoal and vinegar has been carried out. The observation was conducted on the time and temperature profile of pyrolization process, yield of charcoal and its collected vinegar. The resulted charcoal and its liquor. The resulted charcoal and its liquor were subjected to further analysis, i.e. ash content, volatile matter at 950 C, fixed carbon content, and calorific value for the charcoal and the pH, organic substance profile for the liquor. The study revealed that the yield of charcoal was varied from the lowest 8.07% (wb) of bamboo petung and the highest of 20.81% (wb) i.e., of bamboo Andong. The ash content of charcoal was varied from 5.01 to 6.8% (wb). The volatile matter at 950 C was varied from 17.47 to 33.96% (wb) whereas the fixed carbon content was ranged between 60.97 to 76.25% (wb). The calorific value of the charcoal was varied from 5.01 to 6.8% (wb). The volatile matter at 950 C was varied from 17.47 to 33.96% crystallite between 10,45 And 14.51% and surface area was ranged from 5237 to 6637 cal/g. The electrical conductivity was ranged from 8->9, degree of revealed that the yield of the bamboo vinegar was varied from 6.51-17.26% (wb) with pH varied from 3.57 to 4.01. The content of organic compounds found in the liquor was varied i.e., 19 compounds found in the liquor of bamboo Andong, with dominant compounds of tricycle (2.2.2.1.0(2,6)heptene,1,7-dimethyl-7-(-4-methyl-3-pentyl-(CAS)Si which comprised to 29.69%, 29 compounds in liquor of bamboo petung with dominant compound of Acetic acid (CAS) Ethlic acid which comprised to 40.66%, 13 compounds in liquor of bamboo Ampel with dominant compounds of 2,6,10,14,18,22-Tetracosahexaene, 2,6,10,15,19,23,-hexamethyl-(CAS) squich comprised to 73.38%; 39 compounds in liquor of Bamboo Tali with dominant compound of cyclohexanon, 2-Isobutyl which comprised to 18.64% and 64 compounds was detected in liquor of bamboo Hitam with dominant compounds of 2,3-dihydro-Benzofuran which comprised to 11.53%.*

Keywords : *pyrolization, fire brick kiln, charcoal, vinegar, organic compound, direct combustion.*

Penelitian/Research

**PENGARUH PERLAKUAN SUHU EKSTRAKSI TERHADAP
KARAKTERISTIK MUTU LEMAK KAKAO**

The Influence of Extraction Temperature Treatment on Cocoa Butter Quality Characteristics

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ABSTRACT: *Research on The influence of Extraction Temperature Treatment on Cocoa Butter Quality Characteristics has been conducted. The study was focused on the effect of treatment of the extraction temperature range when conducted hydraulic pressing in coca nibs. The variation of temperature range was chosen at: 40 – 50 C;60 - 70 C;70 -80 C, and 80 – 90 C. The research showed that treatment of extraction temperature level give an influence on the cocoa butter quality characteristics e.g: moisture content, FFA, saponification value, iodine number and refractive index. The results showed that moisture content of cocoa butter extracted decrease with increasing of extraction temperature, while FFA, saponification value, iodine number and refractive index increase with increasing of extraction temperature. The treatment of extraction temperature level also give influence on the proportion of fatty acid type (saturated fatty acid and unsaturated fatty acid) on coca butter. The proportion of total unsaturated fatty acids tend to decrease with increasing of extraction temperature. On the other hand the proportion of total saturated fatty acids and yield of extraction tend to increase with increasing of extraction temperature.*

Keywords : *extraction temperature, fatty acid composition, cocoa butter, FFA, unsaponifiable matter, and iodine number.*

Penelitian/Research

**IDENTIFIKASI SENYAWA FENOL DAN DELFINIDIN PADA KEMBANG
TELANG (*Clitoria ternatea* L.) SERTA UJI EFEKTIVITASNYA TERHADAP
Staphylococcus aureus PENYEBAB RADANG MATA**

*Identification of Phenol and Delphinidine in the Telangs flower (*Clitoria ternatea* L.) and
Its Effectivity to *Staphylococcus aureus* As Eyes Bacterial Disease*

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ABSTRACT: Triglicoside, phenol, and delphinidine are compounds, which is found in the telangs flower (*Clitoria ternatea* L.). Telangs flower usually used by the local people as traditional medicinal plant for eyes conjungtivitis disease caused *Staphylococcus aureus* bacteria. The aim of the study is to know the effectivity of telangs flower on conjungtivity. The preparate of the extracts was prepared by maseration of 1,3 and 5% of telangs flower using 100 ml aquabidest for 24 hours. The extract was then freeze dried at -15°C. The extract obtained was analised by Thin layer chromatography (TLC) using two types of eluent (butanol : asetic acid : water = 4: 4: 2) and eluent (chloroform: methanol = 9: 1). The spots were observed visually under ultraviolet ray at 254 nm and the spots were scrape of, then dissolve in 10 ml of aquabidest. The extract then tested by *Staphylococcus aureus* bacteria using the paper diffusion method. The results show that the extract of telangs flower 1% contains 0.014% of delphinidine, 0.020% of phenol, and 3% extract were 0.016% of delphinidine, 0.022% phenol, and 5% extract were 0.017% of delphinidine, and 0.026% of phenol. The phenol compound 0.026% showed an inhibition areas of 0.87 mm as antibacterial while delphinidine is just a blue pigment of telangs flower

Keywords : Triglycoside, Phenol, delphynidin, telangs flower, eyes conjungtivitis, *Staphylococcus aureus*

Ulasan Ilmiah/ Review

FLAVOR ALAMI: PRODUKSI, SUMBER, TEKNIK ISOLASI DAN RECOVERY

Natural Flavour: Production, Sources, Isolation and Recovery Techniques

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ABSTRACT: *A flavor is substance which may be a single chemical entity, or a blend of chemicals of natural or synthetic origin whose primary purpose is to provide all or part of the particular flavor effect to any food or other product taken in the mouth. A vast array of compounds may be responsible for the aroma of the food products, such as alcohols, aldehydes, esters, dicarbonyls, short to medium-chain free fatty acids, methyl ketones, lactones, phenolic compounds and sulphur compounds. At present, due to the high cost or lack of availability of natural flavor extracts, most commercial flavorants are chemically synthesized, mostly from petroleum-derived precursors. Because chemical synthesis often uses environmentally unfriendly production process, it is desirable to switch to bioproduction, including the extraction from natural sources, de novo microbial process (fermentation), and bioconversion of natural precursors using micro-organisms or isolated enzymes. Natural flavour compounds usually exist at very low concentrations. To recover the flavour compounds at a purity of interest for practical applications, a suitable separation process must be applied. Currently, conventional techniques including solvent extraction, flash distillation and adsorption are being used in industry. These techniques, unfortunately, suffer from such problems as product contamination and degradation as well as high energy consumption. These challenges inspire and encourage the development of a safer and more economical separation technique, such as: pervaporation techniques, head-space techniques, and supercritical fluid extraction. The scope of this paper covers the development in the bioflavor production, sources, isolation and recovery techniques. This paper is aimed at providing the information related on natural flavor issue which can be used as an additional information to the researcher on the natural flavor industry.*

Keywords : *Natural flavour, source, pervaporation, head-space, supercritical fluid extraction*