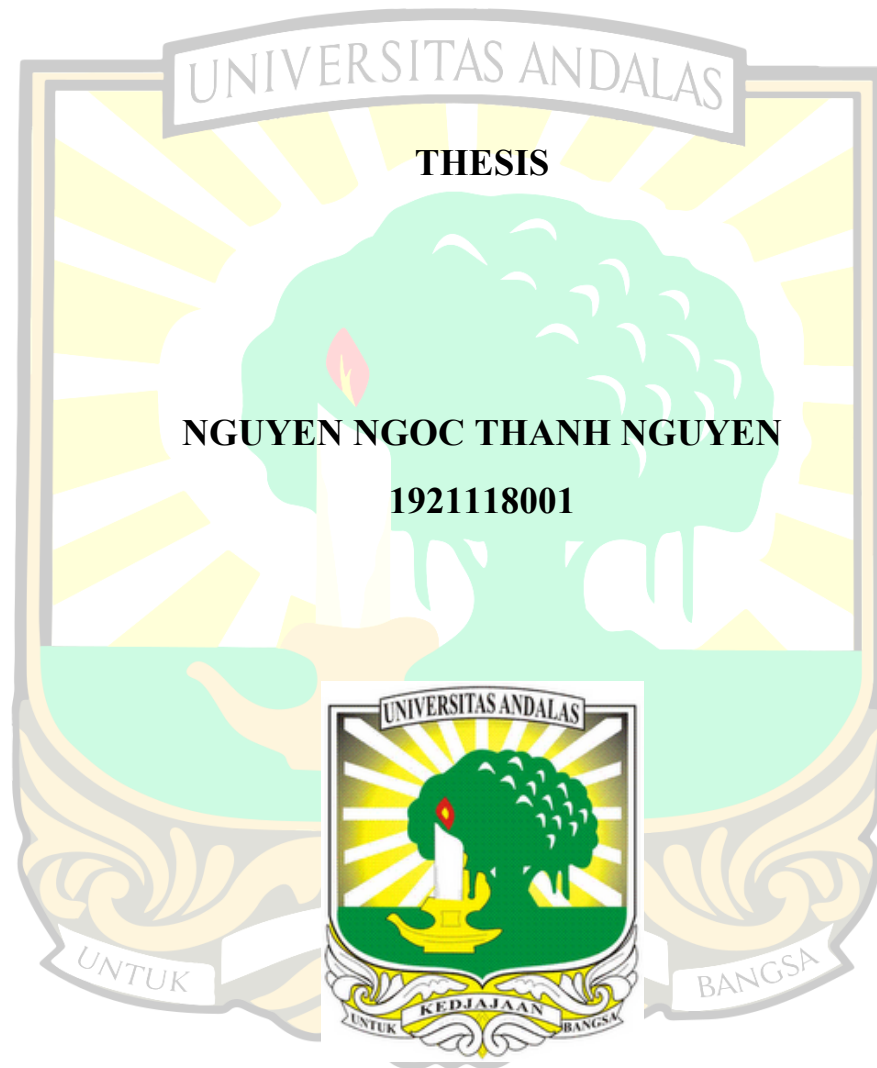


**THE EFFECTS OF FLOUR FROM JICAMA (*P. erosus*),
PORANG (*A. muelleri* Blume) AND PURPLE SWEET
POTATO (*Ipomoea Batatas* L.) WITH THE
ADDITION OF ALOE VERA GEL IN
MAKING PEEL OFF MASK**



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The Effects of Flour from Jicama (*P. Erosus*), Porang (*A. Muelleri Blume*) and Purple Sweet Potato (*Ipomoea Batatas L.*) with the Addition of Aloe Vera Gel in Making Peel-off Gel

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ABSTRACT

Tuber is an excellent carbohydrate source that has been applied in various industrial fields but is easily rotten in the fresh stage. In order to minimize food loss and utilize the application of tubers, creating added-value products is considered a great solution. In addition, peel-off mask is a type of cosmetic that is popular and growing well nowadays. Therefore, this research aimed to formulate and evaluate the characteristics of peel-off gel masks from jicama, porang and purple sweet potato flour with the addition of aloe vera gel to produce a good quality product. Jicama and purple sweet potato starch were extracted from the fresh tubers; porang flour (>80% glucomannan) was obtained from East Java, Indonesia. The research was designed with two stages. The evaluations included physicochemical, organoleptic and irritation tests; Multi Attribute Decision Making - Simple Additive Weighting (MADM-SAW) method was used to select the final product. The first stage, five variant formulas were made with the increase in flour concentrations for each tuber at 1%, 2%, 3% and 4%; a control sample was without flour addition. The further stage investigated the best concentration of aloe vera gel in the range of 1%, 2%, 3%, 4% and 5% for the final formula. The final product formulated from porang 1% with 2% aloe vera gel addition, this formula showed a homogenous consistency with the highest organoleptic recommendation from the panelist; pH level was 5.73 ± 0.01 and the viscosity value was 31516.7 ± 76.38 cPs, which follows the Indonesian National Standard (SNI 2007) for facial products; the spread diameter was 6.33 ± 0.03 cm, which indicates that the gels have good spreadability; peeling time was less than 20 minutes, and there was no irritation; the gel also presented the active effect against *Staphylococcus aureus* and had potential inhibition with the free radical activity (DPPH). Furthermore, the final product obtained financial feasibility with an Incremental Rate of Return (IRR) of 58%, a Net Benefit-Cost Ratio (Net B/C) of 6.32 times, and a Payback Period (PBP) within one year before the project ending.

Keywords: Aloe vera, jicama, peel-off gel, porang, purple sweet potato

Pengaruh Tepung Bengkoang (*P. Erosus*), Porang (*A. Muelleri Blume*) dan Ubi Ungu (*Ipomoea batatas L.*) dengan Penambahan Gel Lidah Buaya dalam Pembuatan Gel Peel-off

Nguyen Ngoc Thanh Nguyen, Alfi Asben, Daimon Syukri

ABSTRAK

Umbi merupakan sumber karbohidrat yang sangat baik yang telah diaplikasikan di berbagai bidang industri namun mudah busuk pada keadaan segar. Untuk meminimalkan food loss dan memanfaatkan aplikasi umbi-umbian, menciptakan produk bernilai tambah dianggap sebagai solusi yang bagus. Selain itu, masker peel off merupakan salah satu jenis kosmetik yang sedang populer dan berkembang dengan baik saat ini. Berdasarkan hal tersebut, penelitian ini dilakukan untuk memformulasi dan mengevaluasi karakteristik masker gel peel off dari tepung bengkoang, porang dan ubi ungu dengan penambahan gel lidah buaya sehingga menghasilkan produk yang berkualitas. Pati bengkoang dan ubi ungu diekstraksi dari umbi segar; tepung porang (>80% glukomanan) yang dibeli dari Jawa Timur, Indonesia. Penelitian ini dirancang dengan dua tahap. Evaluasi meliputi uji fisikokimia, organoleptik dan iritasi; Multi Attribute Decision Making - Simple Additive Weighting (MADM-SAW) digunakan untuk memilih produk akhir. Tahap pertama dibuat lima varian formula dengan peningkatan konsentrasi tepung untuk masing-masing umbi sebesar 1%, 2%, 3% dan 4%; sampel kontrol tanpa penambahan tepung. Tahap selanjutnya mendapatkan konsentrasi gel lidah buaya terbaik pada kisaran 1%, 2%, 3%, 4% dan 5% untuk formula akhir. Produk akhir yang diformulasikan dari porang 1% dengan penambahan gel lidah buaya 2%, formula ini menunjukkan konsistensi homogen dengan rekomendasi organoleptik tertinggi dari panelis; kadar pH $5,73 \pm 0,01$ dan nilai viskositas $31516,7 \pm 76,38$ cPs yang mengikuti Standar Nasional Indonesia (SNI 2007) untuk produk wajah; diameter sebar adalah $6,33 \pm 0,03$ cm yang menunjukkan bahwa gel memiliki daya sebar yang baik; waktu pengelupasan kurang dari 20 menit, dan tidak ada iritasi; gel juga menunjukkan efek aktif melawan *Staphylococcus aureus* dan berpotensi menghambat aktivitas radikal bebas (DPPH). Produk akhir memperoleh kelayakan finansial dengan Incremental Rate of Return (IRR) sebesar 58%, Net Benefit-Cost Ratio (Net B/C) sebesar 6.32 kali, dan Payback Period (PBP) dalam satu tahun sebelumnya. proyek berakhir.

Kata kunci: Bengkoang, lidah buaya, peel off gel, porang, ubi ungu