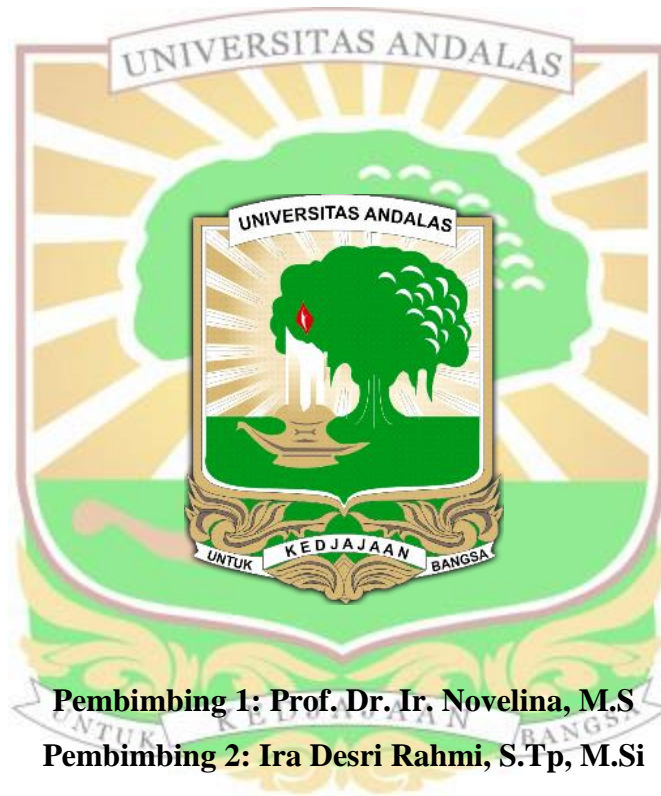


**PEMBUATAN *EDIBLE FILM* DARI PATI GARUT (*Maranta arundinaceae*  
L) DENGAN PENAMBAHAN EKSTRAK DAUN SIRIH (*Piper battle* L)**

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## Manufacture of Edible Film of Arrowroot Starch (*Maranta Arundinaceae* L) With The Addition of Betel Leaf Extract (*Piper Batle* L)

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### ABSTRACT

This study is aimed to get the best edible film formulation for the physical, chemical and organoleptic of arrowroot starch with some additional treatment of betel leaf extract. This research used Completely Randomized Design (CRD) with 5 treatments and 3 replications. Formulation addition of betel leaf extract consist of 0 ml, 2 ml, 4 ml, 6 ml and 8 ml. Analysis on the raw material of arrowroot starch is chemical content (protein, carbohydrate, fat, water content, ash content, crude fiber, starch), Betel Leaf Extract: Polifhenol total (%) and antioxidant activity (%). Analysis of Edible films (Betel Leaf Extract) are for chemical characteristic (water content, polyphenols total, antioxidant activity), Physical characteristic (thickness, tensile strength, elongation, solubility), antimicrobial activity and organoleptic test (transparency, scent, color, texture). The addition of betel leaf extract significant effect on water content, total polyphenols, antioxidant activity, thickness, tensile strength, elongation, solubility. Antimicrobial activity was significantly different toward the addition of betel leaf extract such as 6 ml and 8 ml with a clear zone along the 4.10 mm and 6.50 mm. The addition of betel leaf extract up to 8 ml of the edible film arrowroot starch has not been effectively inhibited the bacteria *Staphylococcus aureus*. The best organoleptic of edible film is addition of betel leaf extract as much as 2 ml (treatment B), which characteristics are transparency 5, scent 4, color 5, and texture of 3.67. Treatment B were obtained in an average of water content of 21.6548%, 0.92% polyphenols total, 24.99% antioxidant activity, 0.82 mm thickness, 27.16 MPa tensile strength, 40.09% elongation, and 36.19% solubility.

Keywords : Arrowroot starch, edible film, betel leaf extract, antimicrobial activity

# **Pembuatan *Edible Film* Dari Pati Garut (*Maranta arundinaceae* L) Dengan Penambahan Ekstrak Daun Sirih (*Piper Batle* L)**

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## **ABSTRAK**

Penelitian ini bertujuan untuk mendapatkan formulasi *edible film* terbaik untuk sifat fisik, kimia, dan organoleptik dari pati garut dengan beberapa perlakuan penambahan ekstrak daun sirih. Pada penelitian ini digunakan Rancangan Acak Lengkap (RAL) dengan 5 perlakuan dan 3 ulangan. Formulasi penambahan ekstrak daun sirih yaitu sebanyak 0 ml, 2 ml, 4 ml, 6 ml dan 8 ml. Analisa yang dilakukan pada bahan baku yaitu pati umbi garut adalah kandungan Kimia (protein, karbohidrat, lemak, kadar air, kadar abu, serat kasar, pati), Ekstrak Daun Sirih yaitu Total Polifenol (%) dan aktifitas antioksidan (%). Analisa *Edible film* (Ekstrak Daun Sirih) yaitu Kimia (kadar air, total polifenol, aktifitas antioksidan), Fisik (ketebalan, *tensile strength*, elongasi, kelarutan), aktifitas antimikroba dan Organoleptik (transparansi, aroma, warna, tekstur). Penambahan ekstrak daun sirih memberikan pengaruh nyata terhadap kadar air, total polifenol, aktifitas antioksidan, ketebalan, *tensile strength*, elongasi, kelarutan. Aktifitas antimikroba berbeda nyata pada saat penambahan ekstrak daun sirih sebanyak 6 ml dan 8 ml dengan zona bening sepanjang 4,10 mm dan 6,50 mm. Penambahan ekstrak daun sirih hingga 8 ml pada *edible film* pati garut belum efektif untuk menghambat bakteri *Staphylococcus aureus*. Organoleptik secara deskripsi menghasilkan *edible film* terbaik yaitu pada penambahan ekstrak daun sirih sebanyak 2 ml. Dengan karakteristik mutu transparansi 5, aroma 4, warna 5, dan tekstur 3,67. Hasil pengujian terhadap perlakuan B di peroleh rata-rata kadar air 21,65%, total polifenol 0,92%, aktifitas antioksidan 24,99%, ketebalan 0,82 mm, *tensile strength* 27,16 Mpa, Elongasi 40,09%, kelarutan 36,19%.

**Kata kunci** : Pati garut, *Edible Film*, Ekstrak daun sirih, Aktifitas antimikroba