# FORMULASI *EDIBLE FILM* EKSTRAK ETANOL DAUN MATOA (*Pometia pinnata* J.R. & G. Forst) DAN UJI AKTIVITAS ANTIJAMUR *Candida albicans* ATCC 14053


## ABSTRAK

Kandidiasis oral merupakan infeksi oportunistik pada rongga mulut yang disebabkan oleh pertumbuhan berlebih *Candida albicans*. Penyakit ini masih menjadi permasalahan kesehatan yang sering dijumpai, terutama pada individu dengan sistem imun yang menurun. Penggunaan obat antijamur sintetik secara terus-menerus dapat menimbulkan efek samping dan risiko resistensi sehingga diperlukan alternatif terapi yang lebih aman dan efektif. Daun matoa (*Pometia pinnata* J.R. & G. Forst.) diketahui mengandung berbagai senyawa metabolit sekunder yang berpotensi sebagai antijamur. Penelitian ini bertujuan untuk memformulasikan ekstrak etanol daun matoa menjadi sediaan *edible film* serta mengevaluasi karakteristik fisik dan aktivitas antijamurnya terhadap *Candida albicans*.Penelitian ini merupakan penelitian eksperimental laboratorium. Ekstrak etanol daun matoa diperoleh melalui metode maserasi menggunakan etanol 96%, kemudian diformulasikan menjadi edible film menggunakan kombinasi polimer HPMC dan natrium alginat dengan konsentrasi ekstrak 25%, 30%, dan 35%. Evaluasi yang dilakukan meliputi karakterisasi ekstrak, skrining fitokimia, pengujian aktivitas antijamur ekstrak, evaluasi mutu fisik edible film, dan pengujian aktivitas antijamur sediaan secara in vitro.Hasil penelitian menunjukkan rendemen ekstrak sebesar 22,69%, kadar air 4%, dan kadar abu 9,2%. Skrining fitokimia menunjukkan adanya flavonoid, tanin, saponin, dan triterpenoid. Ekstrak etanol daun matoa memiliki aktivitas antijamur terhadap *Candida albicans* dengan diameter zona hambat rata-rata sebesar 10,63 ± 0,31 mm; 12,00 ± 2,94 mm; dan 15,53 ± 0,06 mm pada konsentrasi 25%, 30%, dan 35%. Seluruh formula edible film memenuhi sebagian besar parameter mutu fisik dengan Formula F2 sebagai formula terbaik. Namun, seluruh formula edible film tidak menunjukkan aktivitas antijamur terhadap *Candida albicans*. Disimpulkan bahwa ekstrak etanol daun matoa memiliki aktivitas antijamur terhadap *Candida albicans* dan berhasil diformulasikan menjadi *edible film* dengan karakteristik fisik yang baik, tetapi aktivitas antijamur tersebut belum dapat dipertahankan setelah proses formulasi.



**Kata kunci:** *Pometia pinnata, edible film, Candida albicans.*

# FORMULATION OF AN EDIBLE FILM CONTAINING ETHANOL EXTRACT OF MATOA LEAVES (*Pometia pinnata* J.R. & G. Forst) AND EVALUATION OF ITS ANTIFUNGAL ACTIVITY AGAINST *Candida albicans* ATCC 14053


## ABSTRACT

Oral candidiasis is an opportunistic infection of the oral cavity caused by the overgrowth of *Candida albicans*. This disease remains a common health problem, particularly among immunocompromised individuals. The prolonged use of synthetic antifungal agents may lead to adverse effects and antifungal resistance; therefore, the development of safer and more effective alternative therapies is needed. Matoa leaves (*Pometia pinnata* J.R. & G. Forst.) are known to contain various secondary metabolites with potential antifungal properties. This study aimed to formulate the ethanolic extract of matoa leaves into an edible film dosage form and to evaluate its physical characteristics and antifungal activity against *Candida albicans*.This study was conducted using an experimental laboratory design. The ethanolic extract of matoa leaves was obtained through maceration using 96% ethanol and subsequently formulated into edible films using a combination of hydroxypropyl methylcellulose (HPMC) and sodium alginate polymers at extract concentrations of 25%, 30%, and 35%. The evaluations included extract characterization, phytochemical screening, antifungal activity testing of the extract, physical quality assessment of the edible films, and in vitro antifungal activity testing of the formulations.The results showed that the extract yield was 22.69%, with a moisture content of 4% and an ash content of 9.2%. Phytochemical screening revealed the presence of flavonoids, tannins, saponins, and triterpenoids. The ethanolic extract exhibited antifungal activity against *Candida albicans*, with mean inhibition zone diameters of 10.63 ± 0.31 mm, 12.00 ± 2.94 mm, and 15.53 ± 0.06 mm at concentrations of 25%, 30%, and 35%, respectively. All edible film formulations met most of the required physical quality parameters, with Formula F2 showing the best characteristics. However, none of the edible film formulations exhibited antifungal activity against *Candida albicans*.In conclusion, the ethanolic extract of matoa leaves demonstrated antifungal activity against *Candida albicans* and was successfully formulated into an edible film with good physical characteristics; however, its antifungal activity was not retained after formulation.



**Keywords:** *Pometia pinnata*, *edible film*, *Candida albicans*.