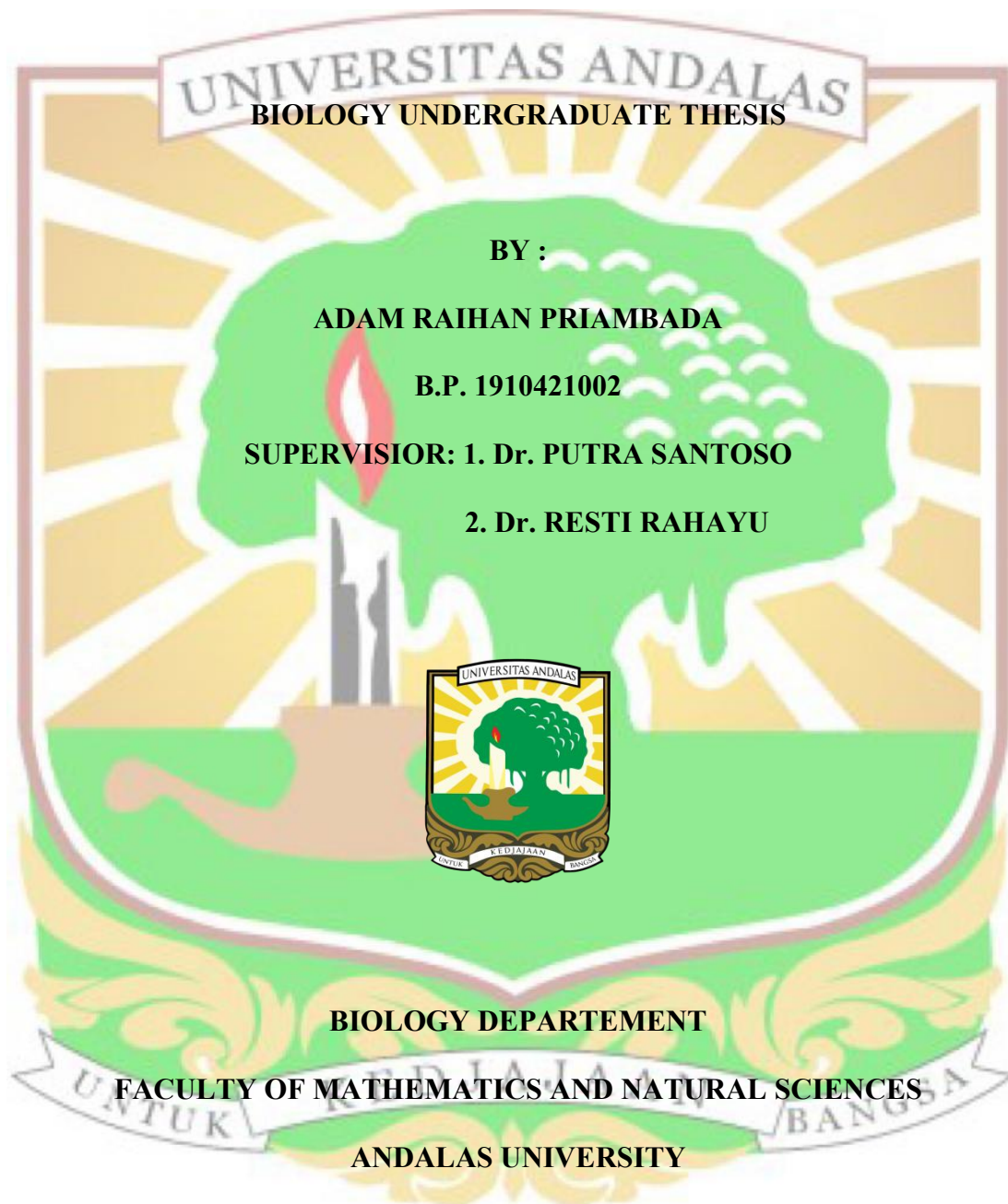


**PREVENTIVE EFFECT OF MENTAWAI TARO (*Colocasia esculenta*;
ARACEAE) AGAINST INFLAMMATION AND OXIDATIVE STRESS IN
COLON OF MICE FED WITH HIGH-FAT DIET**



ABSTRAK

Penyakit radang usus (*Inflammatory Bowel Disease*) merupakan salah satu penyakit yang erat kaitannya dengan munculnya kanker kolorektal dan berpotensi dua kali lipat terkena kanker kolorektal. Pada penelitian ini bertujuan untuk mengungkap khasiat umbi talas mentawai (*Colocasia esculenta L.*) dengan menggunakan berbagai sediaan talas mentawai yang diduga dapat mencegah peradangan pada usus dan peningkatan kadar radikal bebas pada usus dalam bentuk *malondialdehida* (MDA), serta mengungkap senyawa bioaktif dalam talas mentawai yang mampu mencegah pensinyalan dalam mekanisme peradangan usus. Pengkondisian radang usus pada hewan uji dengan memberikan *High fat diet* (HFD) dan mencampurkan HFD dengan sediaan dari talas mentawai berupa tepung, serat dan pati. Parameter yang di ukur pada parameter *histomorfik* yakni, diameter colon, ketebalan lapisan tunika mukosal, ketebalan lapisan tunika muskularis, edema submukosa dan integritas epitel, pengukuran kadar MDA dalam colon dan studi *in silico molekuler docking*. Pada penelitian ini didapatkan hasil bahwa pemberian sediaan talas berupa serat dan pati mampu menekan perubahan histologi colon berupa edema submukosa, sediaan talas mentawai berupa tepung, pati dan serat mampu dalam menekan akumulasi MDA dalam kolon. Didapatkan hasil *molekuler docking* dimana Astaxanthin merupakan senyawa bioaktif talas mentawai dalam menghambat pensinyalan peradangan usus dengan binding afinity -9.0 kcal/mol.

Kata kunci : *Colocasia esculenta L.*, *histomorfik*, *Inflammatory Bowel Disease*, *malondialdehida*, *molekuler docking*



ABSTRACT

Inflammatory bowel disease is one of the diseases that is closely related to the emergence of colorectal cancer and has twice the potential to develop colorectal cancer. This study aims to reveal the efficacy of mentawai taro tubers (*Colocasia esculenta L.*) by using various mentawai taro preparations that are thought to prevent intestinal inflammation and increased levels of free radicals in the intestine in the form of *malondialdehyde* (MDA), as well as revealing bioactive compounds in mentawai taro that can prevent signaling in the mechanism of intestinal inflammation. Conditioning of intestinal inflammation in test animals by giving High fat diet (HFD) and mixing HFD with preparations from Mentawai taro in the form of flour, fiber and starch. The parameters measured in *histomorphic* parameters are colon diameter, thickness of the tunica mucosal layer, thickness of the tunica muscularis layer, submucosal edema and epithelial integrity, measurement of MDA levels in the colon and *in silico molecular docking* studies. In this study, it was found that the administration of taro preparations in the form of fiber and starch was able to suppress changes in colon histology in the form of submucosal edema, mentawai taro preparations in the form of flour, starch and fiber were able to suppress MDA accumulation in the colon. *Molecular docking* results were obtained where Astaxanthin is a bioactive compound of Mentawai taro in inhibiting intestinal signaling with a binding affinity of -9.0 kcal/mol.

Keywords: *Colocasia esculenta L.*, *histomorphic*, *Inflammatory Bowel Disease*, *malondialdehyde*, *molecular docking*

