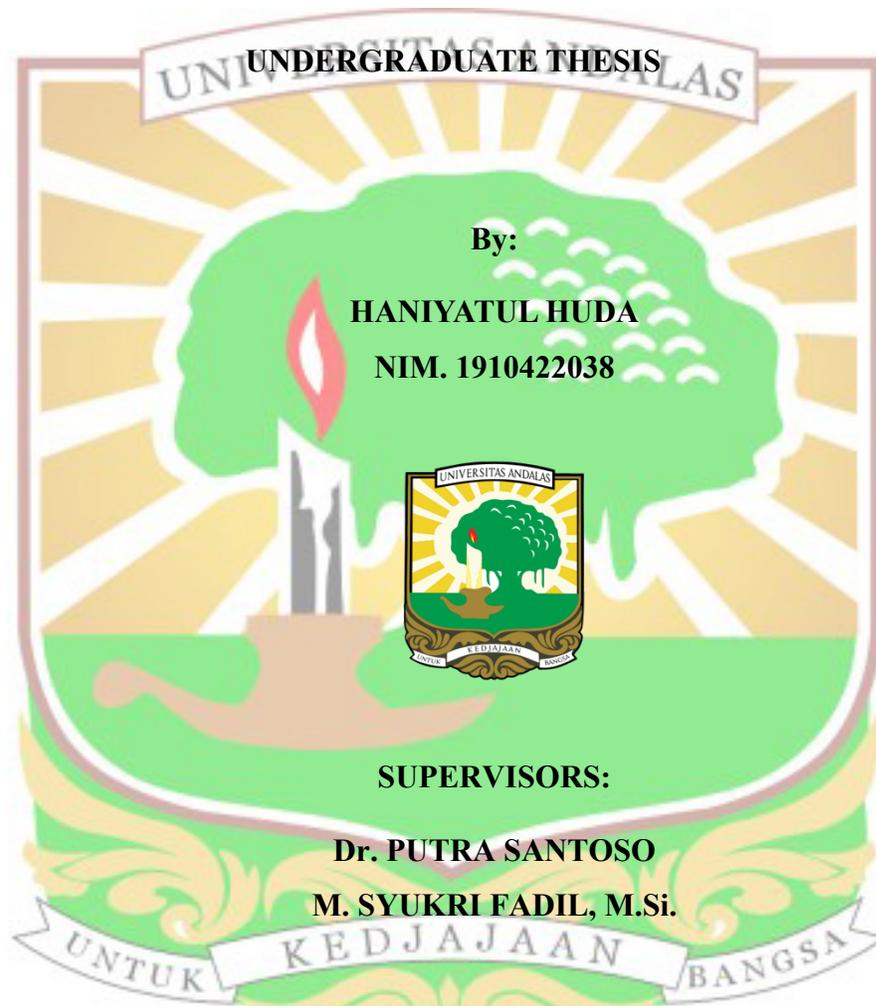


EFFECT OF WILD SUMATRAN TURMERIC (*Curcuma sumatrana* Miq.) EXTRACT AS A NEUROPROTECTOR IN HIGH-FAT DIET-FED MICE



UNDERGRADUATE THESIS

By:

HANIYATUL HUDA

NIM. 1910422038

SUPERVISORS:

Dr. PUTRA SANTOSO

M. SYUKRI FADIL, M.Si.

**BIOLOGY DEPARTMENT
FACULTY OF MATHEMATICS AND NATURAL SCIENCE**

ANDALAS UNIVERSITY

PADANG

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ABSTRACT

High-fat diet consumption, particularly that rich in saturated fatty acids, can impair brain health and contribute to neurodegenerative processes induced by neuroinflammation and oxidative stress. The high demand for natural and affordable alternative medications for neurodegenerative diseases, which are generally expensive and carry the risk of side effects, has increased the popularity of turmeric supplements. *Curcuma sumatrana* is reported to contain anti-inflammatory and antioxidant compounds. This study aims to examine the neuroprotection effects of *C. sumatrana* ethanol extract in high-fat diet (HFD) fed mice. The study uses a completely randomized design with five treatments and five repetitions: a negative control group (normal diet), a positive control group (HFD), and three groups feed a HFD for 10 weeks with *C. sumatrana* extract at doses of 100, 200, and 400 mg/kg BW orally for 4 weeks, starting in the seventh week. The high-fat diet consisted of a mixture of commercial feed (Citraveed Vital Rabbit), fat (Anchor® unsalted butter), and sucrose. The test included a series of cognitive tests: Hebb-Williams maze; Y maze; hole-board; dyadic social interaction, malondialdehyde (MDA) level, and brain histopathology. The results showed that the administration of the extract increased curiosity and the duration of social interactions, as well as repairing the histopathology of the brain by preventing neocortical thinning. The reduction in neuronal degeneration in the neocortex was effective at a dose of 400 mg/kg BW. These findings indicate that *C. sumatrana* extract can prevent brain damage induced by a high-fat diet.

Keywords: *Curcuma sumatrana*, High-fat diet, Cognitive tests, Oxidative stress, Neocortex

