

## ABSTRACT

### THE EFFECT OF ETHANOL EXTRACT OF GALANGAL RHIZOME (*Alpinia galanga*) ON BRAIN HISTOPATHOLOGICAL APPEARANCE IN THE MALE MICE (*Mus musculus* L) INDUCED BY *Monosodium glutamate* (MSG)

By

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**Background:** *Monosodium glutamate* (MSG) induced brain damage characterized by microscopic neuronal necrosis and clinically neurologic deficits. Galangal has flavonoid that serves as an antioxidant that can protect the brain.

**Objective:** To determine the effect of ethanol extract of galangal rhizome (*Alpinia galanga*) on brain histopathological appearance in the male mice (*Mus musculus* L) induced by *Monosodium glutamate* (MSG).

**Methods:** This study used 30 mice that were divided into 5 groups. K(-) is not given any treatment, K(+) is given intraperitoneal MSG 4 mg/grBB, P1 is given intraperitoneal MSG 4 mg/grBB and oral galangal extract 14 mg/ 20grBB, P2 is given intraperitoneal MSG 4 mg/grBB and oral galangal extract 28 mg/ 20grBB, and P3 P1 is given intraperitoneal MSG 4 mg/grBB and oral galangal extract 56 mg/ 20grBB.

**Results:** The average number of brain neuronal necrosis were K(-) 3,8; K(+) 5,4; P1 5,4; P2 5; dan P3 4,8. The *One-Way ANOVA* result showed that the  $p=0,015$ .

**Conclusion:** There are no difference in the effect of ethanol extract of galangal rhizome (*Alpinia galanga*) on brain histopathological appearance in the male mice (*Mus musculus* L) induced by *Monosodium glutamate* (MSG).

Keywords: brain, galangal, MSG

## ABSTRAK

### **PENGARUH PEMBERIAN EKSTRAK ETANOL RIMPANG LENGKUAS (*Alpinia galanga*) TERHADAP GAMBARAN HISTOPATOLOGI OTAK MENCIT JANTAN (*Mus musculus* L) YANG DIINDUKSI *Monosodium glutamate* (MSG)**

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**Latar belakang:** *Monosodium glutamate* (MSG) menimbulkan kerusakan otak yang ditandai dengan adanya nekrosis neuron secara mikroskopis dan defisit neurologis secara klinis. Lengkuas memiliki kandungan flavonoid yang berfungsi sebagai antioksidan yang dapat melindungi otak.

**Tujuan:** Tujuan dari penelitian ini adalah untuk mengetahui pengaruh pemberian ekstrak etanol rimpang lengkuas (*Alpinia galanga*) terhadap gambaran histopatologi otak mencit (*Mus musculus* L) jantan yang diinduksi *Monosodium glutamate* (MSG).

**Metode:** Penelitian ini menggunakan 30 mencit yang dibagi ke dalam 5 kelompok perlakuan. K(-) tidak diberi perlakuan, K(+) diberi MSG 4 mg/grBB intraperitoneal, P1 diberi MSG 4 mg/grBB intraperitoneal dan ekstrak lengkuas 14 mg/20 grBB oral, P2 diberi MSG 4 mg/grBB intraperitoneal dan ekstrak lengkuas 28 mg/20 grBB oral, dan P3 diberi MSG 4 mg/grBB intraperitoneal dan ekstrak lengkuas 56 mg/20 grBB oral.

**Hasil:** Rerata jumlah nekrosis neuron yang didapatkan antara lain K(-) 3,8; K(+) 5,4; P1 5,4; P2 5; dan P3 4,8. Setelah dilakukan uji statistik dengan uji *One-Way ANOVA* diperoleh nilai  $p = 0,105$ .

**Simpulan:** Tidak terdapat pengaruh pemberian ekstrak etanol rimpang lengkuas (*Alpinia galanga*) terhadap gambaran histopatologi otak mencit (*Mus musculus* L) jantan yang diinduksi *Monosodium glutamate* (MSG).

Kata kunci: lengkuas, MSG, otak