

## ABSTRAK

Pada penelitian ini dilakukan sintesis nanopartikel magnetite - ekstrak biji karabenguk (Fe-MPn) Indonesia dan uji potensinya dalam menurunkan katalapsi pada mencit. Tahapan penelitian yang dilakukan terdiri dari ekstraksi serbuk biji karabenguk, sintesis Fe-MPn, karakterisasi Fe-MPn, dan uji katalapsi Fe-MPn. Ekstraksi serbuk biji karabenguk dilakukan dengan metode maserasi menggunakan pelarut etanol-air (1:1) pH 3. Sintesis Fe-MPn dilakukan dengan mereaksikan larutan ferri klorida ( $\text{FeCl}_3$ ) dan ekstrak biji karabenguk. Karakterisasi Fe-MPn dilakukan menggunakan instrumen *Scanning Electron Microscopy* (SEM), *Fourier Transform Infrared* (FTIR), *X-ray Diffraction* (XRD) dan *Thermal Gravimetric Analysis/ Differential Thermal Analysis* (TG/DTA). Uji katalapsi dilakukan pada Fe-MPn dosis 5, 15, dan 25 mg/kg berat badan. Hasil penelitian menunjukkan bahwa Fe-MPn berupa agregat dengan ukuran diameter partikel rata-rata  $\pm 166,5$  nm seperti ditunjukkan oleh gambar SEM. Spektrum FTIR menunjukkan pita lebar pada serapan  $574,7 \text{ cm}^{-1}$  mengindikasikan ikatan Fe-O dari Fe-MPn. Difraktogram *X-ray* menunjukkan Fe-MPn bersifat amorf. Profil TG/DTA menunjukkan penambahan partikel Fe meningkatkan kestabilan termal ekstrak biji karabenguk. Hasil uji katalapsi menunjukkan Fe-MPn pada ketiga dosis mampu menurunkan katalapsi pada mencit secara signifikan. Diantara ketiga dosis, dosis yang paling baik menurunkan katalapsi adalah dosis 15 mg/kg berat badan.

**Kata Kunci** : Fe-MPn, katalapsi, *Mucuna pruriens*, nanopartikel, sintesis.

## **ABSTRACT**

*The research is conducted to synthesis the nanoparticle magnetite - Indonesian velvet bean extract (Fe-MPn) and to examine its potential to decrease catalepsy symptom in mice. This study consisted of several stages i.e. extraction of velvet bean seed powder extraction, synthesis and characterization of Fe-MPn and catalepsy test of Fe-MPn. In particular, velvet bean seed powder was extracted by maceration method using ethanol-water (1:1) solvent mixture with pH 3. Fe-MPn were synthesized by reaction of ferric chloride (FeCl<sub>3</sub>) solution with velvet bean extract then were characterized by means of several methods, i.e. Scanning Electron Microscopy (SEM), Fourier Transform Infrared (FTIR), X-ray Diffraction (XRD), and Thermal Gravimetric Analysis / Differential Thermal Analysis (TG/DTA). Catalepsy test was conducted on various doses of Fe-MPn of 5, 15, and 25 mg/kg body weight. The results showed that Fe-MPn form aggregates with the average particle diameter of size  $\pm 166,5$  nm as indicated by SEM image. FTIR spectrum showed  $574,7$  cm<sup>-1</sup> broad band which indicated the bond of Fe-O from Fe-MPn. X-ray diffractogram showed that Fe-MPn has amorphous structure. TG / DTA profile showed that the addition of Fe particles increase the thermal stability of velvet bean seed extract. Catalepsy test result demonstrated that the three doses of Fe-MPn can decrease catalepsy symptom in mice, significantly. The optimum dose to decrease catalepsy is 15 mg/kg body weight.*

**Keywords:** *Fe-MPn, catalepsy, Mucuna pruriens, nanoparticle, synthesis.*