

UNIVERSITI TEKNOLOGI MARA

SCREENING FOR ANTICONVULSANT ACTIVITY OF
HAB10 R12

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ABSTRACT

The aim of this research project was to screen for anticonvulsant activity in endophytes isolated from *Garcinia scortechinii* (HAB10 R12). Locally known as 'pokok kandis', *G. scortechinii* is a small slender tree which is distributed throughout Malaysia and Southern Thailand. This plant has been studied to have numerous bioactivities. The crude ethyl acetate extract was intraperitoneally injected (administered on three different acute doses which are 25 mg/kg, 50 mg/kg, 75 mg/kg and a chronic dose of 50mg/kg) 10 minutes prior to the administration of picrotoxin (10 mg/kg), a known convulsant which antagonizes non-competitively the effect of γ -aminobutyric acid (GABA). GABA is a known major inhibitory neurotransmitter in the central nervous system (CNS). The results of this research project showed a significant anticonvulsant property at a dose of 50 mg/kg administered either acutely or chronically. Thus, the results suggest the presence of anticonvulsant compounds in ethyl acetate extract of HAB10 R12. This finding can be a trigger to further study the anticonvulsant effect of the HAB10 R12 so that a new and better antiepileptic drug (AED) can be developed. The existing AEDs are commonly associated with dose-related, acute and chronic toxicities among patients with epilepsy which in turn deteriorates their quality of life.

Keywords: Endophytes isolated from *G. scortechinii* (HAB10 R12), anticonvulsant activity, picrotoxin, γ -aminobutyric acid (GABA), antiepilepsy drugs (AEDs), epilepsy.

CHAPTER 1

INTRODUCTION

1.1 Overview

Epilepsy can be defined as recurrent, usually unprovoked seizures that result from excessive synchronous and abnormal firing patterns of the cerebral cortical neurons (Epilepsy Council, Malaysian Society of Neurosciences, 2005). In epilepsy, the normal pattern of neuronal activity becomes disturbed, causing strange sensations, emotions, and behaviour, usually involving convulsions, muscle spasms, and loss of consciousness.

Epilepsy is one of the major neurological disorders and up to 5% of the world population develops epilepsy in their lifetime (Sander and Shorvon, 1996). The prevalence of active epilepsy is roughly in the range of 5-10 per 1000 people. Epilepsy's approximate annual incidence rate is 40-70 per 100,000 in industrialized countries and 100-190 per 100,000 in resource poor countries, which indicates that socioeconomically deprived people are at higher risk (Sander, 2003). In Malaysia, a recent study done at University of Malaya Medical Centre suggests that the prevalence of epilepsy in Malaysia falls in the range of figures reported elsewhere (Manonmani and Tan, 1999). Knowledge of epilepsy among Malaysians are still generally influenced by cultural beliefs, and superstitions. This lack of accurate information about epilepsy leads to various social and medical morbidities (Rahman, 2005) thus indicating a need for proper and correct education as well as campaigns to improve awareness and knowledge on epilepsy among Malaysians.