

UNIVERSITI TEKNOLOGI MARA

**FREE RADICAL AND NITRIC OXIDE SCAVENGING
ACTIVITIES OF *CYNOMETRA CAULIFLORA* LEAVES
EXTRACT**

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ABSTRACT

The aim of this study was to evaluate on the free radical and nitric oxide scavenging activity of *Cynometra cauliflora* leaves. *C. cauliflora* is one of the plants that has been underutilized but is believed to have many beneficial effects on health. In this study, the antioxidants and nitric oxide scavenging activity of *C. cauliflora* leaves were studied using the 2,2-diphenyl-1-picrylhydrazil (DPPH) and nitric oxide scavenging assay. DPPH which is a stable free radical, is used to measure the antioxidant potentials of *C. cauliflora* in scavenging the free radicals. Nitric oxide scavenging assay was also developed to generate nitric oxide and evaluate the scavenging activity by *C. cauliflora*.

From the results, the IC₅₀ value of *C. cauliflora* was 21.94 µg/ml and was compared to the standard antioxidant; quercetin with IC₅₀ of 2.253µgml. Quercetin was a better antioxidant as it is required at a lower concentration to scavenge the DPPH free radicals. The IC₅₀ of both control and extract for the nitric oxide scavenging assay was not obtained. Quercetin and *C. cauliflora* scavenged 22% and 15% NO respectively, at 200µg. The results suggested that *C. cauliflora* leaves have potential in antioxidant activities and could be beneficial for developing compounds which is natural and non-toxic. Further studies should be conducted to explore the potential and benefits of *C. cauliflora* in other activities as well as its potential to counteract diseases associated with oxidative stress.

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

Malaysia is a country that is rich in many precious herbal plants. The examples of well-known herbal plants in Malaysia with medicinal properties include *Centella asiatica* (Pegaga), *Morinda citrifolia* (Mengkudu) and also *Labisia pumila* (Kacip Fatimah). However, there are also many other underutilized herbal plants that could have a beneficial and great medicinal values. Medicinal herbs are being used extensively and are considered free from any toxic effects as it is natural (Nasri & Shirzad, 2013). Therefore, the interest of this study is on *Cynometra cauliflora* which has been known locally as “nam-nam” or “katak puru” plant. This plant is also known by names such as “Hima” among the Thailand people and “Kopi Anjing” by the Indonesian (Farina, Aziz, Iqbal, & Author, 2013). The leaves have been used by diabetic and hyperlipidemic patients. In addition, the fruits act as a remedy for anorexia while its seed oil is used to heal skin diseases (Ado, Abas, Ismail, Ghazali, & Shaari, 2015).

Through this claim, many patients would be eager to use this plant to treat their diseases. However, the absence of scientific investigation and evidence to support these claims may cause patients to experience toxicity and later leads to other