



**PHYTOCHEMICAL SCREENING AND ANTIOXIDANT
PROPERTY OF *Solanum nigrum* L. AND *Stenochlaena palustris*
(BURM. FIL.) BEDD FROM KENINGAU, SABAH**


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ABSTRACT

PHYTOCHEMICAL SCREENING AND ANTIOXIDANT PROPERTY OF *Solanum nigrum* L. AND *Stenochlaena palustris* (BURM. FIL.) BEDD FROM KENINGAU SABAH.

The *Stenochlaena palustris*, from the family of Blechnaceae and *Solanum nigrum*, from the family of Solanaceae are used as vegetables and traditional medicine in Sabah. They are both well known for their therapeutic properties. Present investigation was undertaken to evaluate the possible antioxidant potential of ethanol and acetone extract of fresh and dried sample of *Stenochlaena palustris* and *Solanum nigrum*. The aim of this study was to assess the antioxidant activity of ethanol and acetone extract using 1,1-diphenyl-2-picrylhydrazyl (DPPH) free radical scavenging activity. The phytochemical compounds in plants were detected by using standard procedure where particular chemicals were used and colour changes were observed. The results from phytochemical screening analysis have shown that alkaloids are detected in both sample extract of *Solanum nigrum* and *Stenochlaena palustris* whereas terpenoid only detected in the dried sample of *Solanum nigrum*. As for the phenol and flavonoid it only detected in the dried *Solanum nigrum* and both in sample extract of *Stenochlaena palustris*. As for the saponin and tannins they are all presence in both sample extract of *Solanum nigrum* but not in sample extract of *Stenochlaena palustris* which used the acetone as solvents extract. The cardiac glycosides compound are only found in *Solanum nigrum*. Hence, it means that the potential for both dried and fresh sample to have antioxidant properties were the same. The highest result of percentage of inhibition if compared with the others samples was recorded in dried ethanolic extract of *Solanum nigrum* where at 300 mg/ml the inhibition percentage was 74.74 % ($\pm = 0.00055$). The lowest for percentage of inhibition compared with other samples was recorded in fresh ethanolic extract of *Solanum nigrum* where at 50 mg/ml the inhibition percentage was 44.05 % ($\pm = 0.00064$) respectively. It can be concluded that dried ethanolic extract of *Solanum nigrum* was the most effective to inhibit free radical oxidant. Further study is needed to evaluate the bioactivity of both *Solanum nigrum* and *Stenochlaena palustris* especially in antioxidant activity.

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Stenochlaena palustris (Burm.) Bedd (*Pteridaceae*) is from the family of Blechnaceae (Liu *et al.*, 1999). Locally, it is known as “Paku Midin” which is consumed as vegetable ferns and are popular in Malaysia, Southern Thailand and Indonesia (Jeng and Nelson, 2015). In Borneo, *Stenochlaena palustris* is called as “Lombiding” which is popular with the Dusun community. *Stenochlaena palustris* is used as vegetable and also in traditional medicine which this plant is known as an edible fern and had been used since ancient times as food and medicine (Chai *et al.*, 2012).

The local people in the central district province of Papua New Guinea and the Nicobar Islands used the tender leaves of *Stenochlaena palustris* as a contraceptive by young people and vegetable that can be eaten by the elderly (Liu *et al.*, 1999). According to Jeng and Nelson (2015), *Stenochlaena palustris* has been shown to have a significant antioxidant