

## **Chemical compositions, antioxidant and antimicrobial activities of Tubu (*Pycnarrhena Longifolia*) leaves used as ingredient in traditional functional foods**

### **ABSTRACT**

Tubu (*Pycnarrhena longifolia*) leaves are known as food enhancer and medicinal plant by several ethnics of Malaysia. The aims of the study were to determine the tubu leaves composition and biological activity including antioxidant and antibacterial. The mineral, sugar and amino acids were determined using HPLC, and bioactive compounds using GCMS. The antioxidant activity was evaluated by DPPH assay, and the antibacterial activity screened by disc diffusion method. The dry leaf compositions were 6.6% moisture, 11.6% ash, 7.0% crude protein, 15.7% crude fiber, 12.1% crude fat and carbohydrate 47%. A total of seven minerals were present in the methanol extract and the highest content was for iron (159.5 mg) and calcium (16.8 mg). The sugar profile showed high sugar content for glucose, sucrose, rhamnose, and fructose which was 8, 13, 7, and 20 mg/g, respectively. A total of sixteen amino acids was present in the tubu leaf extract, and seven bioactive compounds were identified by GC-MS/MS. The antioxidant activity was 87%, total phenolic compound content was 26.49 mg/mL and total flavonoid content was 13.39 mg/mL. Tubu leaves showed antibacterial activity towards *Salmonella enterica* serovar Typhimurium, *Escherichia coli*, *Bacillus cereus* and *Staphylococcus aureus*. This study showed that tubu leaves had rich sources of amino acids, minerals, sugars and bioactive compounds, potential to be a functional food ingredient.

**Keyword:** *Pycnarrhena longifolia*; Biological activity; Minerals; Bioactive compounds; Amino acid