

**DETERMINATION OF ASCORBIC ACID, TOTAL PHENOLIC
CONTENT AND ANTIOXIDANT ACTIVITIES
IN TURMERIC LEAF**



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ABSTRACT

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Turmeric leaf is a common plant in Malay cooking as flavor enhancer. This study was conducted to determine the content of ascorbic acid and total phenolic; as well as to evaluate the antioxidant activity in the extract of the different maturity of turmeric leaf. TLA referred to less mature turmeric leaf, while TLB represented the more mature leaf; characterized by different size (length and diameter). Methanol was used as solvent and all analysis were subjected to UV Spectrophotometer. Results indicated that TLB contain higher ascorbic acid (5.60mg/100g) compared to TLA (5.09mg/100g) on dry weight basis. Total phenolic content was measured using Folin-Ciocalteu assay and comparatively, TLB contain higher total phenolic content (77.36mg/100g) than TLA (55.22mg/100g) and results were expressed as gallic acid equivalent (GAE). These values were significant different at $p < 0.05$. Antioxidant activity was measured according to the β -carotene bleaching method. TLB exhibited higher AA% (81.7%) compared to TLA (13.8%). Positive correlations were found between total phenolic content in turmeric leaf extracts and the antioxidant activities.

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CHAPTER 1

INTRODUCTION

Turmeric is a widely used food antioxidant in many Malay traditional recipes. A part from its function to enhance flavor in food, turmeric also can be used to prevent oxidation thus lengthening the storage time of various food. Turmeric is extensively cultivated in India, China, Indonesia, Jamaica, Haiti, Philippines and other tropical countries. This spice is the major ingredient of curry powder and is also used in prepared mustard. The part used is the cured (boiled, cleaned and sun-dried) and polished rhizome. Turmeric has been used for arthritis, high cholesterol, digestion, liver protection and obesity. Turmeric also possesses anti-fungal and anti-bacterial properties. It is a safe and powerful anti-inflammatory.

Antioxidant is a substance which prevents the reaction of various food constituents with oxygen; a group of chemicals, which function effectively as free radical scavengers, reducing agents and quenchers of singlet-oxygen formation, assumed that auto-oxidative processes cause oxidative damage to lipids, proteins and nucleic acids. Auto-oxidative activity is the ability of compounds to inhibit or delay the oxidation process (Akum et al., 2000).