

UNIVERSITI TEKNOLOGI MARA

**ANTIOXIDANT AND ANTI-INFLAMMATORY
ACTIVITIES OF *CURCUMA LONGA* IN AN
EXPERIMENTAL STUDY IN RATS WITH
CARRAGEENAN-INDUCED PAW EDEMA**

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ABSTRACT

Turmeric, *Curcuma longa* L. (Zingiberaceae), has been attributed to a number of medicinal properties in the traditional system of medicine for treating several common ailments. I want to investigate the anti-inflammatory effect of Turmeric in rats with carrageenan-induced paw edema and alterations in the glutathione (GSH) level and the activities of antioxidative enzymes (superoxide dismutase, catalase, and glutathione reductase), as marker of acute inflammation, following oral administration of Turmeric and Acetyl Salicylic Acid (ASA) in rats with carrageenan-induced paw edema. In the previous studies, the researchers found that 1) Turmeric reduced the development of carrageenan-induced paw edema, to a greater degree than ASA; 2) Turmeric and ASA alleviated increases in the activities of catalase enzyme resulting from edema caused by carrageenan injection. These results suggest that the anti-inflammatory effect of Turmeric on carrageenan-induced acute inflammation can be attributed to its ameliorating effect on the oxidative damage.

CHAPTER 1

INTRODUCTION

1.1 Background of the study

An antioxidant may be defined as any substance that when present at low concentrations, compared with those of the oxidizable substrate significantly delays or inhibits oxidation of that substrate. Antioxidants are produced *in vivo* to protect the body from harm that arises as a result of living an aerobic life. Antioxidants are also found abundantly in nature, particular in plants. This study aims to determine the anti-inflammatory activity of a well-known herb, turmeric or *Curcuma longa* L. belonging to the family Zingiberaceae. The name derives from the Latin term *terra merita*, meaning ‘meritorious earth’, referring to the colour of ground turmeric, which resembles a mineral pigment. Turmeric is named basically as ‘yellow root’ in many languages. It is an upright perennial herb with thick and fleshy rhizomes and leaves in sheaths, characteristic of the family Zingiberaceae. The plant reaches a height of about 1 m. The surrounding leaf sheaths taper near the leaf and broaden near the base, forming the pseudostem of the plant. The pseudostem is tall and robust, with oblong/elliptic leaves narrowed at the base (Parthasarathy & Chempakam, 2008).