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EFFECT OF *Zingiber zerumbet* (L) Sm. ON SERUM URIC ACID LEVEL IN OXONATE-INDUCED RATS

WAN MUSFIRAH WAN MOHD YUSOFF

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ABSTRACT

In the past three decades, allopurinol, the xanthine oxidase inhibitor (XOI) has been clinically used in the management of gout. However, its use is sometimes limited by hypersensitivity problems. Thus, it is very valuable to search and investigate other possible alternatives that show inhibitory activities on xanthine oxidase, especially those come from the natural sources. This study determined the potential effect of *Zingiber Zerumbet* (L) Sm. hydroalcoholic extract in reducing serum uric acid level in a model of hyperuricaemic White Male Sprague Dawleys Rats that have been pretreated with potassium oxonate. In order to evaluate the effect of the rhizome of *Z. zerumbet* in reducing serum uric acid level, the hydroalcoholic extract of this plant with dose of 25 mg/kg, 50 mg/kg, 100 mg/kg and 150 mg/kg have been given to oxonate-induced white male rats. Allopurinol was used as the reference drug. The hydroalcoholic extracts of this plant, when administered intraperitoneally to the hyperuricaemic rats, were capable to elicit hypouricaemic effect. However, the effect of all extracts at different doses in reducing serum urate level is not statistically significant. After three times treatment with the extract at a dose of 50 mg/kg, the serum urate level of these rats has been highly reduced compared to other doses of extract. These results revealed that the rhizome of *Z. zerumbet* possessed *in vivo* urate-lowering activities. As compared with allopurinol, it could be concluded that the hypouricaemic effect of *Z. zerumbet* is less than allopurinol in the treatment of hyperuricaemia.

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Deficiency or excess of a specific metabolite in the body may lead to many diseases, or at least symptoms of diseases. The excess of uric acid may lead to gout (Borges et al., 2002). Uric acid is a normal byproduct of purine metabolism that is filtered and excreted by the kidney (Wright et al., 2003).

Gout is a common metabolic disorder in human. From statistically data, it was reported that this disease usually occurs in males, and is present in 1.56 million men in the United States. Five hundred fifty thousand American women suffer from gout. The incidence of gout rises dramatically with age (Wright et al., 2003). In China, it was also growing rapidly probably because of recent changes in dietary habits (Borges et al., 2002).

In patient with gout, there is a formation and deposition of monosodium urate crystals especially in joints, cartilage, tendons, bones and soft tissues (Wright et al., 2003). Gout