

**THE EFFECT OF DRYING CONDITIONS ON THE STABILITY OF
ASCORBIC ACID AND TOTAL POLYPHENOLIC COMPOUND IN
GALANGA**

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ABSTRACT

THE EFFECT OF DRYING CONDITIONS ON THE STABILITY OF ASCORBIC ACID AND TOTAL POLYPHENOLIC COMPOUND IN GALANGA

Moisture content by the dried galanga sample was between 10% to 10.5% at 50⁰C and 70⁰C. Ascorbic acid content in fresh galanga was 12.64 mg/100g. Oven drying of galanga at 50⁰C and 70⁰C incurred loss of ascorbic acid content. The losses of ascorbic acid in dried galanga treated with 300 ppm (10.78 mg/100g) and 600 ppm (11.46 mg/100g) and dried at 50⁰C were 14% and 9.3 % while for ascorbic acid in dried galanga treated with 300 ppm (8.98 mg/100g) and 600 ppm (9.20 mg/100g) and dried at 70⁰C were 28% and 27 %. In general, ascorbic acid content was affected by drying temperature. Higher retention of ascorbic acid was observed using lower drying temperature 50⁰C compared to 70⁰C. Ascorbic acid losses in untreated dried galanga at drying temperature of 50⁰C (8.46 mg/100g) and 70⁰C (6.08 mg/100g) were higher (33.1% and 51.9%) compared to treated sample. Polyphenolic content in fresh galanga was 61.02 mg/100g. Dried galanga treated with 300 ppm (37.10 mg/100g) and 600 ppm (45.98 mg/100g) sodium metabisulphite and subjected to drying at 70⁰C, incurred higher losses of polyphenolic content of 39% and 24.6% were observed. In comparison, using 50⁰C drying temperature incurred lower losses of polyphenolic content which were 28% and 21% for dried galanga treated with 300 ppm (43.90 mg/100g) and 600 ppm (48.28 mg/100g) sodium metabisulphite. Polyphenolic losses in untreated dried galanga at drying temperature 50⁰C (30.99 mg/100g) and 70⁰C (21.11 mg/100g) were 49.2% and 65.4% which were higher than treated sample at the same temperature (50⁰C and 70⁰C). From the colour measurement higher L (56.13) and b values (17.45) for sample treated with 600 ppm sodium metabisulphite at 50⁰C. There is significant difference (p<0.05) sample treated with 600 ppm sodium metabisulphite in L and b values with sample treated with 300 ppm sodium metabisulphite and untreated sample.

CHAPTER 1

INTRODUCTION

The genus *Alpinia* was named by Plumier after Prospero Alpino, a famous Italian botanist of the early seventeenth century. The name *Galanga* is derived from the Arabic *Khalanjan*, perhaps a perversion of a Chinese word meaning “mild ginger”. It's originated from South East Asia, probably southern China. It is now cultivated in India, Indochina, Thailand, Malaysia, and Indonesia. The ginger like rootstock (rhizome) is the useful plant part. *Galanga*, a relative of ginger, was popular throughout Europe in the middle ages when it was dried and ground. It resembles ginger, but the rhizomes are larger and pale yellow with zebra like markings and pink shoots. It is not to be eaten raw, since it possesses very bitter taste. However it is an important ingredient in Thai curry pastes. Its ability to curb nausea and settle the stomach (Remington and Woods, 1918).

Besides, there are two compounds that are very important in vegetables and fruits. The two compounds are ascorbic acid and phenolic compound. Ascorbic acid is found in large variety of foods but particularly in fruits and vegetables. It is also known as vitamin C that usually found in citrus fruit such as oranges while phenolic acid present in many natural products, mainly in fruit and vegetables that contributing to flavour, colour and also astringency (Macrae et al., 1993).