

**DETERMINATION OF CAPSAICIN IN
DIFFERENT TYPES OF CHILIES (*Capsicum Annuum*)
USING SOLID PHASE MICROEXTRACTION (SPME)
AND GAS CHROMATOGRAPHY MASS
SPECTROMETRY DETECTOR (GC-MSD)**



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ABSTRACT

DETERMINATION OF CAPSAICIN IN DIFFERENT TYPES OF CHILIES (*Capsicum Annum*) USING SOLID PHASE MICROEXTRACTION (SPME) AND GAS CHROMATOGRAPHY MASS SPECTROMETRY DETECTOR (GC-MSD)

Determination of capsaicin in different types of chilies (*Capsicum Annum*) were extracted by method of solid phase microextraction (SPME) and then analyzed by gas chromatography with mass spectrometry detector (GC-MSD). The optimizations of SPME were carried out in order to enhance the fiber performance and obtain high amount of capsaicin extracted. It was found that the optimum SPME conditions were at 50°C extraction temperature and 30 min extraction time. The direct immersion of SPME was applied to extract capsaicin from chilies. The result showed that *Capsicum annum* var chili padi has the relatively highest concentration of capsaicin. This was followed by *Capsicum annum* var chili kulai and *Capsicum annum* var chili merah besar.

CHAPTER 1

INTRODUCTION

1.1 Background

Chili pepper is an annual herbaceous plant of the *Solanaceae* family cultivated worldwide and extensively used as spice in the diet, especially due to its characteristic pungency, aroma and color appeal (Eliane *et al.*, 2006). Chili pepper and their cultivars originate in the Americas. Archeological artifacts evidenced that *Capsicum* gender peppers have been used since 8600–5600 B.C. by primitive communities in America (Eliane *et al.*, 2006). Besides the large application of *Capsicum* peppers related with cookery, they have been employed in traditional medicine as antimicrobial, insecticide, anticonvulsive, sedative and even in unusual applications such as in bravery rituals of young indigenous warrior of South America (Eliane *et al.*, 2006).

The common species of chili peppers are *Capsicum annuum* (includes many common varieties such as bell peppers, paprika, cayenne, jalapeños, and the chiltepin), *Capsicum frutescens* (includes the tabasco peppers), *Capsicum chinense* (includes the hottest peppers such as the naga, habanero, Datil and Scotch bonnet), *Capsicum*