



CHAPTER I

INTRODUCTION

It has long been known that the fruit of *Capsicum* species accumulates and secretes severely pungent materials. The capsicum fruits with hot taste, widely known by the name "hot chilli", have been used as an important spice to enhance the taste of food. In the food industry, the uses of capsicum fruits are both as colorant and food flavor such as table sauces, canned meats etc. The fruits have also been used as an medicinal drug (Bartho, 1982). Fresh green, fresh red, dry-red fruit and capsicum powder are the four different forms of capsicum products available in Thai market but only the dry red fruit and capsicum powder are available for international trade (กรมเศรษฐกิจการพาณิชย์, 2532). In Thailand, capsicum have generally been cultivated in every region for both consumption and trade. The capsicum has two species with many different varieties which can be classified based on their differences. The size of capsicum fruits varies from the smallest (15 mm. length) to the biggest (over 100 mm. length). The big fruit is usually used as food coloring agent whereas the small fruit, because of its pungency taste, is used as food additive.

The constituents of capsicum responsible for its value as food additive are capsaicinoids (for pungency) and carotenoids (for color) (Jurenitsch and David, 1979). Capsicum has been reported to contain 0.1–1% of capsaicin the major substance of capsaicinoids (Kosuge, 1970) and 0.05–0.5% carotenoids. In addition to capsaicin, there are other closely related pungent substances present in the fruits in small quantities such as dihydrocapsaicin, homocapsaicin, nordihydrocapsaicin and homodihydrocapsaicin (Benett, 1968; พยอม ตันติวัฒน์, 2528). Since capsaicin is

universally accepted as the predominant pungent principle in capsicum, the quality of capsicum and also its oleoresin is dependent largely on the capsaicin content and thus methods for estimating capsaicin are becoming more important (Kosuge, 1970 ; The Joint Committee of the Pharmaceutical Society and the Society for Analytical Chemistry an the Methods of Assay of Crude Drugs, 1959). Methods available for analysis of capsaicin include diazo colorimetric method and Gibb's colorimetric method, thin-layer chromatography with ferric chloride-potassium ferricyanide reagent (Spanyol, 1969) or UV measurement at 280-281 nm, derivatization with trimethylsilyl (TMS) of capsaicin in GC analysis (Muller-Stock, 1972; Dececco, 1976) and High-performance liquid chromatography (Iwai, 1979). For carotenoids, the carotenoids in red ripe fruit of capsicum is composed of at least thirty kinds of identified carotenoids (Camara, 1982). Generally, the content of color in capsicum fruits is expressed in form of total carotenoids. The total carotenoid content in capsicum is vary from 0.01-0.50%. Spectrophotometric method is preferred in carotenoid analysis because it is convenient and time-saving. Some studies have used HPLC for individual carotenoid separation but this analytical method can not give the real value total carotenoids because a number of minor carotenoids can not be detected.

In Thailand, although there are many kinds of capsicum cultivated in every region, very little is known about their capsaicin and carotenoid contents. The aim of this study is therefore, to set up two reliable methods for the determinations of both capsicum capsaicinoids and carotenoids in order to evaluate the quality of capsicum which are obtained from various cultivars grown in Thailand.