CHAPTER I

INTRODUCTION

Various foodstuffs containing the precursors of mutagens can become direct-acting mutagens after nitrite treatment. Nitrite is well known as a common food additive used to cure meat products; especially in fast food and smoked food, which are popular to many people but consumption of nitrite and dietary nitrogen containing compounds might be an etiologic factor in development of some cancers. However, nitrite also has its dark site as it can convert many dietary components to be mutagens. For example, nitrite treated soy sauce showed direct-acting mutagenicity on *Salmonella typhimurium* TA 100 (Wakabayashi *et al.*, 1983). In addition, various kinds of pickled vegetables and sun-dried fish produced in Japan showed direct-acting mutagenicity on *S. typhimurium* TA 100 after interaction with nitrite salt in acid solution (Wakabayashi *et al.*, 1984).

Changing social patterns also have had a large influence on our food. Many people may not have enough time for lengthy preparation and cooking of more traditional meals. Therefore, fast food is appropriated for urban life style especially instant noodle.

Instant noodle has many benefits. It is convenience, cheap and easy to prepare for consumption. Many studies on some fast food meat products revealed that they contained heterocyclic amines (Knize *et al.*, 1995; Stavric *et al.*, 1995); however, no study was done on instant noodle. Furthermore, studies on simulated meat flavour showed that series of heterocyclic amines were formed in the preparing process (Eisenbrand and Tang, 1993; Felton *et al.*, 1992; Munro *et al.*, 1993; Sugimura and

Wakabayashi, 1990). Such heterocyclic amines (IQ type) contained members that were converted to nitro derivative by nitrite treatment. Therefore, it was of interest to study on seasoning that were used in Thai instant noodle. Thus, the main objective of this study was to determine the mutagenicity of extracts of cooked instant noodle treated with nitrite. The results of this study would provide some information regarding the risk of consumption of such foods in the presence of nitrite salt during gastric digestion.

Statement of Thesis Problem

Since the food habits of Thai people have changed likely to be Western style. Instant noodles are favorites for consumer because of their convenience and cheap price. In addition, most Thai people have daily experience in consuming nitrite, since it is widely used as a coloring and a preservative agent of fermented meat products in order to inhibit *Clostridium botulinum*. Therefore, the main objective of this study was to investigate the mutagenic potential of the extracts of instant noodles interacted with nitrite using Ames test.

Specific Objective

To determine the direct mutagenicity of extracts from instant noodles, seasonings and noodles prepared in the presence of seasonings interacted with nitrite in an acid solution (pH 3-3.5) using Ames test.