Thesis Title Effect of Rice, Guava and Tangerine on the Formation of Some Volatile N-nitroso Compounds from Broiled Cuttle Fish in Simulated gastric Condition.

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Date of Graduation 23 May B.E. 2538 (1995)

ABSTRACT

Effect of rice, guava, and tangerine on the formation of some-volatile N-nitrso compounds in simulated gastric condition from broiled cuttle fish were evaluated. Six volunteers, healthy people and non-smoker, were asked to ingest Guay-tiew pud se-iew as high nitrate diet to induce high level of nitrite in their saliva. After 2 hours of ingestion, they chewed broiled cuttle fish, broiled cuttle fish and rice, broiled cuttle fish and tangerine, broiled cuttle fish and guava for experiment I, II,III, and IV, respectively. Then these chewed foods were incubated in simulated gastric condition for 2 hours. Nitrosamine formation was evaluated by mineral oil distillation

method and Gas Chromatograph-Thermal Energy Analyzer (GC-TEA) used as detector. The result of the studies indicated that in experiment I, N-nitrosodimethylamine (NDMA) and N-nitrosopyrrolidine (NPYR) was found in broiled cuttle fish before chewing and increased about 10 and 2 fold after 2 hours incubation, respectively. Experiment II, only NDMA was found in broiled cuttle fish, not found in rice, and it increased about 2.5 fold after 2 hours incubation. NDMA, N-nitrosopiperidine (NPIP) and NPYR are found in broiled cuttle fish of experiment III and IV. The reduction of these nitrosamines was 90-100 % after 2 hours incubation. It was clearly demonstrated that guava and tangerine have 100 % inhibitory effect of N-nitroso compounds (NOC) formation in simulated gastric condition and may have some reaction that can cause a decrease in the amount of pre-incubation nitrosamine about 90 % - 100 %. Rice may have some small inhibitory effect of N-nitrosation when compared to incubation with chewed broiled cuttle fish only. It is suggested that the ingestion of guava and tangerine which contained high ascorbic acid is very useful and suitable for those consuming diet with high content of volatile N-nitroso compounds to prevent the formation of NOC, which acts as potent carcinogen that may cause cancer in human, especially gastric cancer. However, the drastically inhibitory effect of guava and tangerine on the formation and on the reduction of preformed nitrosamine are not known, further studies are needed to elucidate their mechanisms.