Thesis Title Nitrite Scavenging Activity of Fibers Derived from Fruits and Vegetables; and Their Antimutagen Formation of Aminopyrene and Nitrite in Simulated Gastric Condition using Ames Test.

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ABSTRACT

The nitrite scavenging activity and the antimutagn formation of aminopyrene interacted with nitrite of nineteen different of fiber derived from various fruits and vegetables were evaluated. The fiber derived from raw cabbage, boiled cabbage , raw chinese kale, fried chinese kale, raw pomelo peels, sugared pomelo peels, raw cucumber, boiled cucumber, raw waxgourd, boiled waxgourd, raw ivygourd, fried ivygourd, raw papaya, ripe papaya, unpolished rice, rice bran, raw pineapple core, sugared pineapple core have been selected to be evaluated on their nitrite scavenging capability. *Salmonella typhimurium* strain TA 98 and TA 100 were used in carrying out Ames test where study of antimutagen formation has been tested on fiber upon the reaction between aminopyrene and sodium nitrite in gastric simulation.

The results of this study indicated that fiber of fruits and vegetables had different nitrite scavenging capability which are ranging from 0.1 to 0.25

microgram nitrite per milligram fiber, whereas alpha cellulose was not a nitrite scavenger. Its scavenging activity was approximate 0.0016 microgram nitrite per milligram fiber. In addition the selected fibers could scavenge aminopyrene too. The comparison between home-style cooking or the maturity of fruits and vegetables (raw and ripe) It was clearly demonstrated that home cooking or the ripening of fruits and vegetables did not significantly affect on nitrite scavenging capability and antimutagen formation of aminopyrene interacted with with nitrite. When each fiber was incorporated to the reaction mixture of aminopyrene and nitrite, the mutagenicity was reduced with dose-response relationship. Examining on the antimutagen formation effects of the fibers prepared from cooked waxgourd and cabbage, it was found that they had slightly less antimutagen formation than those prepared from the raw ones. On the other hand, fibers prepared from cooked cucumber had a better antimutagen formation activity. However, it was too early to conclude that heat processing had any effect on the fiber. Surprisingly, the formation of mutagens of frame-shift type was occurred less than those of based-paired type. It is, thus suggested that the consumption of fruits and vegetables can reduce the risk in obtaining the toxicants derived from the interaction between nitrite and dietary component.