3836096 RANU/M : MAJOR : NUTRITION ; M.Sc. (NUTRITION)

KEY WORDS : MUTAGENICITY / AMINOPYRENE / NITRITE / MAILARD REACTION PRODUCTS / AMES TEST

RENU CHONGMANKONGCHEEP : EFFECTS OF MAILLARD REACTION PRODUCTS (MRPs) ON MUTAGENICITY OF NITRITE-AMINOPYRENE REACTION PRODUCT: STUDIES ON FORMATION OF MUAGEN AND ON FINAL PRODUCT. THESIS ADVISORS : KAEW KANGSADALAMPAI Ph.D., ANADI NITITHAMYONG Ph. D., WANNEE KUSAMRAN Ph. D., 94 P. ISBN 974-662-755-4

Maillard reaction products from cysteine-sugars and methionine-sugars were tested for their mutagenicity using *Salmonella* mutagenicity test without metabolic activation. The mutagenicity of Maillard reaction products was not found on both *Salmonella typhimurium* strains TA98 and TA100. After being interacted with nitrite, most Maillard reaction products still showed no mutagenicity at the dose examined but exhibited the tendency to be mutagenic on strains TA98 and TA100. Maillard reaction products from cysteine-fructose, cysteine-lactose and methionine-fructose which were found to be mutagenic on TA100 and that from methionine-glucose was found to be mutagenic on TA98. All Maillard reaction products were also examined for their effect on the mutagenicity of aminopyrene-nitrite reaction mixture and 4-h nitrite-treated aminopyrene. It was found that most Maillard reaction products increased the mutagenicity of aminopyrene-nitrite reaction mixture strains TA98 and TA100. The mutagenicity of Maillard reaction products-aminopyrene nitrite product was higher than that in 4-h aminopyrene nitrite product and Maillard reaction product when it was tested using strain TA98 only. Partial killing effect was elicited when Maillard reaction products from cysteine-sugars were incorporated to the aminopyrene nitrite product through strain TA100.