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PRANEE KIATSURAYANONT: MUTAGENIC AND ANTIMUTAGENIC POTENTIAL OF MONOSODIUM GLUTAMATE PRODUCTION WASTE (BX LIQUID) TREATED WITH NITRITE IN THE AMES TEST AND THE WING SPOT TEST USING *Drosophila Melanogaster.* THESIS ADVISORS: KAEW KANGSADALAMPAI, Ph.D.VISITH CHAVASIT, Ph.D. ANADI NITITHAMYONG Ph.D. 173 p. ISBN 974-664-022-4

Three monosodium glutamate production waste (BX liquid) were tested for their mutagenicity and antimutagenicity using *Salmonella* mutagenicity test without metabolic activation.

The mutagenicity of BX liquids were not found on both *Salmonella typhimurium* strains TA98 and TA100. After being interacted with nitrite, all samples still showed no mutagenicity at the dose examined. All samples were also examined for their effect on the mutagenicity of aminopyrene-nitrite reaction mixture and 4-h nitrite-treated aminopyrene. It was found that BX liquid increased the mutagenicity of aminopyrene-nitrite reaction mixture both strain TA98 and TA100. The mutagenicity of sample-aminopyrene nitrite product was higher than that in 4-h aminopyrene nitrite product and sample when it was tested using strain TA98 only. Partial killing effect was elicited when the sample was incorporated to the product through strain TA100. To compare the mutagenic potential of BX liquid with another test, the wing somatic mutation and recombination test (SMART) was also applied.Larvae tran- heterozygous (3 days old) for the wing cell markers mwh (multiple wing hairs) and flr3 (flare wing hair) were fed on a medium containing BX liquids until pupation. Subsequently, the wings of the resulting adult flies were analyzed for the frequencies and size of single and twin spots. No mutagenicity of samples either BX alone or treated with nitrite were observed. The antimutagenic effects of BX liquids was also evaluated in SMART test, using urethane as a standard mutagen. At high doses, all samples strongly inhibited the mutagenicity of urethane. It is noticed that co-administration applied simultaneously give better result than incubation of sample and urethane before being applied to the larvae.