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DRUGS/ AMINOPYRENE/ NITRITE/ AMES TEST

ORATHAI TOOBUNTHEUNG: MUTAGENICITY OF ANABOLIC-ANDROGENIC DRUGS AFTER NITRITE TREATMENT AND EFFECT OF DRUGS ON MUTAGENICITY OF AP-NITRITE MODEL: STUDIES ON THE FORMATION OF DIRECT MUTAGENS DURING 4H AP-NITRITE INCUBATION AND ON THE MUTAGENIC PRODUCT OF 4H AP-NITRITE REACTION. THESIS ADVISOR: KAEW KANGSADALAMPAI Ph.D., ONANONG KANGSADALAMPAI Ph.D., ANADI NITITHAMYONG Ph.D., 98 P, ISBN 974-664-148-4

Anabolic-androgenic steroid drugs (AAS drugs) abuse by athletes is wide spread at present. Doping of athletes with drugs presumed to enhance athletic ability. Under a gastric condition, using a megadose of drugs for a long time will cause an interaction with nitrite, which is used as food preservative and additive in many food stuffs. Furthermore, many mutagenic products are produced by reaction of their precursors in foods with nitrite under this condition. Thus, effects of AAS drugs during mutagenic formation and on mutagenic product were studied by using the represented AP-nitrite model. Six often abused AAS drugs namely: danazol, fluoxymesterone, mesterolone, methandienone, stanozolol, and testosterone undecanoate were evaluated for mutagenicity themselves and after nitrite treatment in the pH like gastric condition (pH 3-3.5) using the *Salmonella* mutagenicity assay (Ames test) without metabolic activation. No mutagenicity of both AAS drugs themselves and nitrite treated products was found. The interaction between nitrite treated aminopyrene (AP) and each drug gave rise to some modulating effects. It was found that stanozolol and fluoxymesterone enhanced the mutagenicity to both TA98 and TA100 while testosterone undecanoate did only on TA98. On the other hand, danazol decreased the mutagenicity of nitrite treated AP on both tester strains TA98 and TA100 while mesterolone and methandienone did not show any clear results. Furthermore, inhibitory effects on mutagenic product were found in all drugs except methandienone on both tester strains. In conclusion, AAS drugs did not show mutagenicity in the Ames *Salmonella* assay. However, their effect on mutagenicity of AP-nitrite model did not give clear results. Due to the unclear results of these drugs with nitrite found in many food stuffs, they should be avoided with or after meals. In fact, these drugs should be used only in the emergency situations to control diseases.