

TRITIUM INCORPORATION IN RATS CHRONICALLY EXPOSED TO TRITIATED FOOD OR TRITIATED WATER FOR THREE SUCCESSIVE GENERATIONS**Z. PIETRZAK-FLIS, I. RADWAN, Z. MAJOR and M. KOWALSKA***Central Laboratory for Radiological Protection. Warsaw, Poland***Abstract**

Wistar rats have continuously ingested tritiated food (48.1 kBq/g) or tritiated water (37.0 kBq/ml) from three weeks before mating of P₀ through delivery of the F₃ generation. An analysis of tissues at various ages during treatment shows that: (1) tritium incorporation into tissues of rats life-time exposed to tritiated food was on the average 3.53±0.38 times higher than after similar exposure to tritiated water; (2) the highest organically bound tritium concentrations were found in ovaries and lungs of rats exposed to tritiated food. Tritiated water exposure gave the highest concentrations of this isotope in testes and lungs; (3) exposure of females to tritiated water during 64 days, including pregnancy and lactation, is not sufficient to attain equilibrium concentrations of organically bound tritium in all the studied tissues, while in the tritiated food exposure group such equilibrium concentrations were attained in the majority of tissues; (4) the dose rate estimation on the basis of tritium in body water leads to underestimation of absorbed dose in the tissues of rats, especially after exposure to tritiated food.