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Cytogenetic Effects of Tritiated Water (HTO) in Human Peripheral Blood Lymphocytes *in vitro*

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ABSTRACT The yield and distribution of unstable chromosome aberrations induced in human lymphocytes by tritiated water (HTO) has been measured. Tritiated water was mixed with heparinised blood in calculated amounts so as to give 0.1 Gy to 1.5 Gy, 30min and 2 hours. After culturing for 48 hrs, the dicentric yield was measured as a function of dose to the blood. Using a linear quadratic dose-effect relation to fit the experimental data, a significant linear contribution was found. The a, b values were found to be $8.25 + 0.4 \times 10^{-2}$ Gy^{-1} and $6.4 + 0.2 \times 10^{-2}$ Gy^{-2} respectively. Micronuclei yield at low doses could be fitted to a linear equation $Y = C + a D$ and indicates a á coefficient of 0.172 ±. 0.003. This value is found to be 2.18 and 2.8 times higher than those previously reported for X and gamma rays respectively. Hence b- rays are found to be more efficient in producing two lesions with single ionizing tracks at low doses.

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