Apparently non-exponential survival curves found in earlier work (Michael *et al.*, *Radiat. Res.*, 1973, **54**, 239) have been shown to be caused by an effect of cell density upon radiosensitivity. This effect has been eliminated and we have been able to determine the decay kinetics of oxygen-dependent damage in *Serratia marcescens* more accurately. The observed kinetics are qualitatively in agreement with those predicted by the Alper and Howard-Flanders model (Alper, *Radiat. Res.*, 1956, **5**, 573; Howard-Flanders and Moore, *Radiat. Res.*, 1958, **9**, 422) but quantitatively they do not match the first order decay indicated by the model. The simplest possibilities suggested by the present data are either that the oxygen-dependent damage decays by second order kinetics or that there are 2 types of damage decaying at differing rates.

THE ROLE OF SHORT AND LONG-LIVED RADIOLYTIC PRODUCTS IN RADIOSENSITIZATION BY IODINATED AROMATIC COMPOUNDS.

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In addition to iothalamic acid, other iodinated radiological contrast media have been tested for radiosensitizing activity. They were diatrizoic acid, containing a single triiodinated benzene ring, and iodipamide, containing 2 such rings. The experimental results have shown that both compounds strongly enhance the lethal effect of radiation on *E. coli* B/r in oxic conditions and are essentially ineffective in anoxia.

Buffered solutions of the above mentioned compounds develop a long-lasting radiation induced bactericidal activity when irradiated at pH lower than 6. The bactericidal products appear to be related to the release of molecular iodine from the irradiated compounds, and formed in a process requiring OH radicals and molecular oxygen.

In radiosensitization occurring when bacterial cells are irradiated in the presence of iodine containing compounds, the short-lived intermediate products appear to play the predominant role.

ACTIVITIES OF L-ORNITHINE DECARBOXYLASE AND S-ADENOSYL-L-METHIONINE DECARBOXYLASE IN X-IRRADIATED MURINE

LEUKAEMIC LYMPHOBLASTS L5178Y-S DURING MITOTIC DELAY.

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Observations are rapidly accumulating which suggest that polyamines-putrescine, spermidine and spermine may play an important role in the mechanisms regulating macromolecular biosynthesis and cellular proliferation. L-ornithine decarboxylase and S-adenosyl-L-methionine decarboxylase are enzymes from the biosynthetic pathway leading to these polyamines. The behaviour of these enzymes in irradiated cells is unknown. In the present investigation it was found that irradiation of exponentially growing *in vitro* murine leukaemic lymphoblasts L5178Y-S with 100 rad of x-rays causes long mitotic delay lasting approximately 7 h. The phase of recovery from mitotic delay is accompanied by transient increases in activities of L-ornithine decarboxylase (by approximately 200%) and S-adenosyl L-methionine decarboxylase (by 60%). It is suggested that the observed increases in both enzyme activities are connected with post-irradiation recovery of mechanisms regulating cell division.

RADIOLYSIS OF A PIG GASTRIC GLYCOPEPTIDE.

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The mammalian gastrointestinal mucosae are particularly radiosensitive. Since the protective barrier of the epithelium is made of glycoproteins, a study of the effect of radiation on such biopolymers was undertaken. In the present communication some results are reported on gamma and pulse radiolysis of a gastric glycopeptide in aqueous solution.

Viscosity and gel filtration measurements, gas-chromatographic analyses of neutral sugars, analyses of amino acids and hexosamines and colorimetric analyses of hexoses and fucose were carried out in the steady-state radiolysis studies. The results show that irradiation gives some chemical modifications at the level of the single glucidic components, mainly galactose and fucose. Viscosity data and fractionation on Sephadex G-200 indicate that depolymerization of the macromolecule occurs to give low molecular weight products.