

LETTERS TO THE EDITOR

Irradiation of Penicillin

SIR,—We have recently exposed sodium benzylpenicillin in the dry state and in aqueous solutions to gamma irradiation from a cobalt 60 source, and have assayed the materials by the method described by Royce, Bowler and Sykes¹. Table I shows the results obtained. The controls consisted of solutions of the same batch of material as the irradiated samples, sealed in ampoules at the same time and kept under identical conditions. The loss of potency on irradiation is negligible.

TABLE I

Batch number	Radiation in rads $\times 10^6$	Assay of original	Assay after irradiation	Control
		<i>Solution of Penicillin</i>		
6174	1.00	*15,200 units/ml.	15,140 units/ml.	15,180 units/ml.
6174	1.00	*19,300 "	15,800 "	16,000 "
6734	2.00	*22,500 "	18,400 "	19,200 "
		<i>Dry Penicillin</i>		
	1.00	—	1588 units/mg.	1600 units/mg.

* Mean of three samples

We have also exposed to gamma irradiation, soil cultures of spores known to be highly resistant to heat. After irradiation these spores failed to germinate in culture media. The amount of irradiation (0.5×10^6 rad) to which they were exposed was half the lowest dose applied to the penicillins. It thus appears probable that if gamma radiation were developed as a method of sterilising pharmaceutical products, solutions of penicillin would be sufficiently stable to withstand this process.

Work is proceeding with other labile substances.

For the assay of the penicillin, it was found necessary to allow four hours for the penicillinase reaction to be completed, a longer time than that used by Royce and his colleagues.

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REFERENCE

1. Royce Bowler and Sykes, *J. Pharm. Pharmacol.*, 1952, 4, 904.