

despite the disappearance of the fat tissues quite possibly indicates that water was retained, though not sufficient to produce demonstrable edema.

¹ Boggs and Morris, *J. Exp. Med.*, 1909, xi, 553.

² Feigl, *Biochem. Z.*, 1921, cxv, 63.

³ Sakai, *Biochem. Z.*, 1914, lxii, 387.

⁴ Horiuchi, *J. Biol. Chem.*, 1920, xlv, 363.

⁵ Bloor, *J. Biol. Chem.*, 1921, xlix, 201.

⁶ Kerr, Horowitz and Whipple, *Am. J. Physiol.*, 1918-19, xlvii, 356.

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Effect of Radium on Pharmacological Properties of Mercurochrome.

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The effect of various radiations from radium on Mercurochrome was studied by irradiating both the solutions and the solid crystals of the drug. The action of alpha and beta radiations was studied by crushing glass globules containing radium emanation in doses of 4 to 10 millicuries directly under solution of 2% Mercurochrome in water and immediately stoppering tightly the 10 cc. vials of the solution. The effect of gamma rays was studied by placing vials of Mercurochrome solution in juxtaposition to large quantities of radium. The irradiations of solid Mercurochrome crystals was performed in the same way. The pharmacological and bacteriological properties of the solid crystals after irradiation were studied by making a 2% solution of the same. Bacteriological studies were made in the following manner: Cultures of *B. typhosus* were used; the method of studying germicidal action was the so-called Hygenic Laboratory method. The temperature of medication was 20°; the proportion of culture and disinfectant used for making dilutions were 0.1 cc. in 5 cc. Subculture medium was also that of the Hygenic Laboratory method. Quantity used in each tube was 10 cc. Temperature of the incubator was 37°. Various dilutions of the drugs were employed. Time of exposure of the culture to the action of the disinfectant was in one series of experiments 5 minutes and in a second, 15 minutes. Control experiments with unradiated Mercurochrome solutions from exactly the same stock were made in

exactly the same way. It was found that when solutions treated with the alpha and beta radiations were examined within 24 to 48 hours, there was a slightly increased bactericidal activity shown after 5 minutes exposure to the disinfectant. This increased bactericidal property of the solution, however, disappears after a few days. The results obtained must be ascribed to the presence of actual alpha particles in the solution, which particles gradually disappear on standing. Very intensive irradiations were performed with gamma rays by exposing both solutions and crystals of Mercurochrome to 3500 millicuries from 1 to 10 hours. An examination of all these samples bacteriologically on cultures of *B. typhosus*, as described above, revealed no increase in the potency of the Mercurochrome, nor a decrease in the same.

Pharmacological studies of the irradiated samples were made on living seedlings of *Lupinus albus*. In this case, as in the bacteria, it was found that exposure to alpha particles produced a slightly increased toxicity of Mercurochrome. This, however, was not due to any change in the drug, but to the presence of the particles themselves, because the increased toxicity disappeared after a few days. Pharmacological tests on animals showed also no change in the potency of Mercurochrome after the various irradiations. The results of all the experiments lead to the conclusion that radium radiations do not affect the potency of Mercurochrome at all, and indicate that the compound is certainly very stable as far as these radiations are concerned. The effect of Ultra Violet rays has already been described by Macht and Hill elsewhere.¹ The authors are indebted to Dr. Fred West of the Howard A. Kelly Hospital for the irradiations experiments.

¹ Macht, D. I., and Hill, J. H., *J. Am. Pharm. Assn.*, 1927, xvi, 2.

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Adrenal Gland in Wild Gray and Albino Rat: Cortico-Medullary Relations.

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The wild gray rat (*Mus norvegicus*) has larger adrenal glands for a given body weight or body length than does the tame albino rat (*Mus norvegicus* var. *albinus*).¹ In both varieties the females