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Photopharmacology. IV. Effect of radiation on digitalis.**D. I. MACHT and J. C. KRANTZ, JR.**

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The effects of various radiations on the potency and keeping qualities of digitalis were studied. The official tincture of digitalis was used in our experiments. The activity of the preparations was tested in two ways: on the one hand by the cat method, and, on the other hand by the new phytopharmacological method developed by the authors and described elsewhere.¹ The effect of ultra violet rays was studied with a Krohmayer water-cooled mercury vapor quartz lamp and with the Hanovia Alpine Sun Lamp. Tincture of digitalis was radiated with these machines in quartz containers and in pyrex and ordinary glass test tubes for various length of time. The effect of ultra violet radiation was to produce a rapid deterioration of the tincture. Radiation for one hour with the Krohmayer lamp or with the Alpine Sun Lamp of digitalis in a quartz tube produced as much as 30 per cent deterioration in some cases. An analysis of the various rays short and long, in respect to their activity on digitalis, showed that the shorter wave lengths, that is, those less than 2800 angstrom units were more active than the longer ultra violet rays. Digitalis in pyrex vessels was affected deleteriously to a greater extent than digitalis contained in ordinary glass containers.

In addition to the ultra violet rays obtained from the mercury lamp the effect of still shorter radiations on digitalis was studied. Samples of tinctures were exposed to x-rays, to radium directly and to radium emanations. It was found that x-rays and the radium radiations produced destructive changes in the tincture as far as pharmacological potency was concerned. The effect of heat radiations was also studied and it was found that exposure to temperature of 39° for 24 hours or longer, produced considerable deterioration in the tinctures which were tested by the methods described above. The effect of other infra red radiations is under investigation.

¹ Macht, D. I., and Krantz, J. C., *J. Am. Pharm. A.*, 1924, **xiii**, 1115.