Missouri Branch.

Washington University School of Medicine, November 3, 1926.

3303

The Effect of Light upon the Follicular Hormone.

C. N. JORDAN AND EDWARD A. DOISY.

From the Laboratories of Organic and of Biological Chemistry, St. Louis University School of Medicine, St. Louis, Mo.

In an earlier paper we[1] described an improved method for the preparation of the oestrous hormone from hog liquor folliculi, which was based upon the differences in the solubilities of the hormone and cholesterol in petroleum ether and 70 per cent alcohol. During the past summer we were astonished to find that the procedure was not as satisfactory as was formerly found and that losses of over 50 per cent of the hormone were frequently encountered. Since the only changes in the procedure were those imposed by climatic conditions and the substitution of more carefully purified solvents for the commercial products, it was a relatively easy matter to determine the source of our trouble. By the process of elimination it was found that light exerts a profound effect upon the hormone. It is possible that this was not noticed earlier because the laboratory work upon which the method is based was carried out during the winter months.

In an earlier publication Allen and Ellis[2] call attention to the destruction of the hormone by ultra violet light. Some data, which confirm and extend theirs, have been obtained, but our most striking observations are upon the effect of diffuse daylight from north windows upon the activity of the hormone. That such inert (chemically) substances as hexane will cause a 50 per cent loss of hormone in two days, whereas preparations may be kept in ether or alcohol for two years with little loss, seems remarkable. The data of Tables I and II illustrate the effects of light upon the hormone under various conditions.

TABLE I.

No.	Volume Injected.						Remarks.
	.5 cc.	.6 cc.	.7 cc.	.8 cc.	.9 cc.	1.2 cc.	
24a	+						Stock solution—1st ether extraction.
24e		+					Quartz tube in ether 2 days diffuse light.
241		—		—		+	Ether soln. of hormone + alc. soln. of eosin in pyrex tube in diffuse light 2 days.
2411		+				+	Same as 241 except fluorescein was used.
24i		—			—	+	Ether soln. + ether soln. hemin in quartz tube in sunlight 1 hr.
24k		+				+	Same as 24i except alc. soln. hematoporphyrin used instead of hemin.
24h		±		++ (0.75 cc.)			26 hrs. in pet. ether in amber bottle.
24d		—				—	Quartz tube in pet. ether 2 days diffuse light.
24m		+				+	Two days in hexane (syn.) in amber bottle in diffuse light.
241		—			—	+	Same as 24m but kept in pyrex tube.
243m		—			±	+	Same but in quartz tube.
240		—	—		++		3 cc. ether soln. quartz tube in bright sunlight for 3 hrs.
241o		+					Same as 240 but dissolved in 1 cc. alcohol.
23d		++					Alc. soln. in sunlight for 1 hour.
23c		—				—	Same as 23d but containing trace of eosin.
23e		—				±	Ether-petroleum ether soln. exposed to sunlight for 20 min.
23f		—				—	Alc. soln. + crystal of quinine in sunlight for 45 min.

Symbols:
— less than 1 rat unit in volume injected.
+ one or more rat units in volume injected.
± almost 1 rat unit in volume injected.
++ prolonged period of positive reaction.

TABLE II.

No.	Units per 100 cc.		Date.		Remarks.
	1st assay	2nd assay	1st assay	2nd assay	All exposed in light from north windows.
159	66	57	Feb., 1924	Aug., 1926	Ether solution of liquor folliculi extract, green glass bottle.
6A32	333	200	May, 1925	Aug., 1926	Ether solution of placental and ovarian extract in clear flint glass.
R.R.	>500	<100	May, 1925	Aug., 1926	Petroleum ether solution of placental extract in amber bottle part(?) of time.
125	116	80	Dec., 1923	Aug., 1926	Alcoholic solution of a liquor folliculi extract in clear flint glass.

The method of preparation already referred to, but carried out by the illumination from a photographer's red light, gives almost total recovery of the hormone in a purified condition (0.01 to 0.02 mg. per rat unit).

[1] Ralls, J. O., Jordan, C. N., and Doisy, E. A., *J. Biol. Chem.*, 1926, lxix, 357.
[2] Allen, E., and Ellis, M. M., *J. Am. Med. Assn.*, 1925, lxxxv, 94.

3304

Specific Effect of Salts in Extraction of Urease from Amoebocyte Tissue of Limulus.

LEO LOEB AND OSCAR BODANSKY.

From the Department of Pathology, Washington University School of Medicine, St. Louis, and the Marine Biological Laboratory, Woods Hole, Mass.

In a former communication[1] we have shown the presence of urease in the amoebocyte tissue, blood serum, muscle tissue and even in the unfertilized eggs of Limulus. In experiments carried out during the past summer we investigated means of extraction of this enzyme from experimental amoebocyte tissue, and we observed very striking differences in the extracting power of different salts.

Distilled water with or without the addition of urea is entirely or almost entirely ineffective. The Woods Hole sea water, which