17239. Inhibition of Agents of the Psittacosis-Lymphogranuloma Group by P-Arsenobenzamide.

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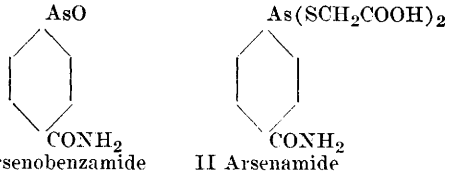
Recent investigations of nitro-analogues of para amino benzoic acid have revealed activity of certain of these compounds against agents of the psittacosis-lymphogranuloma group.[1] Because of these observations it seemed of interest to test compounds recently available in which arsenic is substituted for the nitrogen atom and p-arseno benzamide was selected because it may be considered an arsenic analogue of p-nitro benzamide. The latter substance has shown slight inhibitory activity against the virus of feline pneumonitis. p-Arsenobenzamide and the dithioglycollate, known as Arsenamide,* were tested in mice and chick embryos by the methods described in a current publication[1] against the agents of meningopneumonitis, cat pneumonitis and mouse pneumonitis.



I p-arsenobenzamide II Arsenamide

The results of experiments on pneumonia in mice are summarized in Table I. In mice inoculated intranasally with the agents of mouse or cat pneumonitis and treated with daily intraperitoneal doses of 0.4 mg of p-arsenobenzamide the gross pulmonary lesions were reduced by about 50 per cent as compared with the controls, and there was also significant reduction in consolidation as measured by the lung weights. The thioglycollate derivative, Arsenamide, was about equally effective against the agent of cat pneumonitis.

Chick embryos infected by the allantoic route were given a single dose of 0.2 mg of Arsenamide by the same route after the virus. The results are summarized in Table II. When the substance was given one hour after inoculation of the virus almost complete inhibition of the growth of the agent of cat pneumonitis was observed, as determined by subinoculation of the allantoic fluids of individual eggs into mice. At 24 and 48 hours after inoculation Arsenamide produced partial inhibition of the growth of this virus. The results with meningopneumonitis virus were less striking but partial inhibition of growth in the allantoic sac was obtained when the drug was given one hour after the virus. In mice no significant effect against this virus was obtained (Table I).

Comment. When tested under the same experimental conditions, the activity of p-arsenobenzamide and Arsenamide compares favorably on a weight basis with some of the nitrocompounds including chloromycetin but their toxicity is relatively high and further investigation may show their range of activity to be limited.

As other arsenic compounds have not been examined these preliminary results do not establish any relation of structure to activity against the psittacosis - lymphogranuloma group and further studies will be necessary to assess the significance of the structural relation of this compound to p-aminobenzoic acid and p-nitrobenzamide. Williamson and Lourie[2] have reported that PABA interferes with the trypanocidal action of γ (p-arsenophenyl)-butyric acid, a compound of somewhat similar structure, and Schleyer and Schnitzer[3] find that esters and amides of substituted benzoic acids, but not the acids themselves, antagonize the effect of mapharsen and acriflavine.

Summary. p-Arsenobenzamide and its

1 Eaton, M. D., Huang, C., and Levenson, C. G., PROC. SOC. EXP. BIOL. AND MED., 1949, **71**, 501.

* Both supplied by Dr. Marlin T. Leffler of the Abbott Laboratories.

2 Williamson, J., and Lourie, E. M., *Ann. Trop. Med. and Parasit.*, **1947, 41, 278.**

3 Schleyer, W. L., and Schnitzer, R. J., *J. Immunol.*, 1948, **60**, 265.

TABLE I.
Effect of p-Arsenobenzamide and its Dithioglycollate on Viral Respiratory Infections in Mice.

Virus	Compound	Daily dose, mg	No. of mice	Lesion score		Lung weight	
				T/C*	% change†	T/C*	% change†
Cat pn.	I	0.4	27	21/40	—47	0.203/0.311	—35
" "	II	0.5	32	22/39	—44	0.266/0.311	—15
Mouse pn.	I	0.4	27	11/25	—56	0.161/0.209	—23
Meningo-pneum.	I	0.2	16	30/35	—15	0.297/0.325	— 8

* T = Treated mice. C = Control mice.
† % change = 100(—1+T/C).

TABLE II.
Effect of Arsenamide on Allantoic Infections in Chick Embryos.

Virus	Drug* time After virus, hr	Degree of infection as indicated by subinoculation of allantoic fluids into mice†			
		LS<20	LS20-50	LS>50	Av. L.S.
Cat pneumonitis	1	12	0	0	3.0
	Sal.	2	5	7	52.0
	24	7	5	0	16.3
	48	15	1	1	15.2
	Sal.	3	1	4	46.0
Meningo-pneumonitis	1	10	5	2	22.0
	Sal.	0	1	11	87.0

* Dose 0.2 mg/egg by allantoic route.
† LS<20, allantoic fluid not significantly infected; LS20-50, moderate infection; LS>50, heavily infected allantoic fluid.

dithioglycollate have a definite inhibitory activity against the viruses of mouse pneumonitis and cat pneumonitis in the lungs of mice. The dithioglycollate also inhibits growth of the agents of meningopneumonitis and cat pneumonitis in the allantoic sac of chick embryos.

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17240. Vitamin B_{12} Content of Various Organs and Tissues of the Rat.*

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The glandular tissues of various domestic animals have long been known to be effective in pernicious anemia when administered orally.[1] Beef liver and kidney have proved to be the richest source of the active principle, kidney, however, possessing only one-half to two-

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1 Subbarow, Y., Hastings, A. B., and Elkin, M., *Vitamins and Hormones*, 1945, **3**, 237.