

ALKALOIDAL REAGENTS. III. PROPADRIN, ITS HOMOLOGS AND DERIVATIVES.

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Continuing the study of the seventeen commoner alkaloidal reagents (5), the reactions were determined with epinephrine, ephedrine and various analogous amino-alcohols synthesized in these laboratories (2, 3, 4). The results are given in the seven accompanying tables. Discounting the results with Reagent No. 12 (potassium permanganate), in which the precipitate is probably manganese dioxide (5), there is nothing unusual in the data obtained. None of the arylalkanolamines give a color reaction except *B*-naphthylpropanolamine (Table I), and it appears that this color is characteristic for this compound. The precipitate reactions (Table I) show nothing characteristic, except that as the molecular weight increases an increasing number of reagents give positive tests. It is not unlikely that if stronger original concentrations of the compounds tested had been employed, more precipitates would have been obtained. That is, these results are probably indicative of the solubility rather than of characteristic responses. The positive reactions with Reagent No. 5 (mercuric potassium iodide) indicate that it is the most sensitive of these reagents. The phenolic derivatives (Tables II and III) are much more sensitive, but the difference between position isomers becomes less marked than one would expect from similar tests with phenol and cresols (6). The positive color test of Reagent No. 15 (uranium acetate) with *m-p*-dihydroxypropadrin, and the negative result with its isomer, epinephrine, appears most characteristic.

The methyl ethers of the phenolic derivatives of propadrin (Tables IV and V) are less sensitive than the phenols themselves, yet more sensitive than propadrin.

There appears to be no substantial difference between the sensitivity of the amino-alcohols and the corresponding amino ketones (Tables VI and VII), as indicated by the behaviour with any single reagent.

It may not be amiss to point out that the data obtained thus far in no manner shed any light on the physiological idiosyncracies of a homologous series, such as has been prepared and studied in these laboratories (1).

SUMMARY.

The behaviour of seventeen alkaloidal reagents with a series of epinephrine and ephedrine-like compounds has been observed, and the results have been summarized in tabular form.

BEHAVIOR OF SEVENTEEN ALKALOIDAL REAGENTS WITH PROPADRIN AND DERIVATIVES.

TABLE I.—HYDROCARBON AROMATIC NUCLEI.

For key and abbreviations see April 1932, page 341, *et seq.*

Product.	Precipitate Formation.										Reagent Number.						
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
Phenyl-ethanol-amine					y								b				
Propadrin (phenylpropanol-amine)													b				
Phenylbutanolamine													b				

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TABLE I—Continued.

Product.	Precipitate Formation.										Reagent Number.						
	1.	2.	3.	4.	4.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
Phenyl-pentanol-amine						w	w					b		w			
Phenyl-hexanol-amine	w	w				yw			y			b		w		w	
Phenyl-octanol-amine	w	w				W	w	b	y		y	w	b	y	W	w	
<i>p</i> -Methyl-propadrin ( <i>p</i> -tolyl-propanolamine)						yw									w		
<i>p</i> -Phenyl-propadrin*	w	w	w	w	w	w	rb	y	y	y	w	b	yw	w	w	w	
<i>a</i> -Naphthyl-propanolamine		w	w		w	w	rb	y			w	b	y	w	w	w	
<i>b</i> -Naphthyl-propanolamine		w	w		w	w	rb	y			w	b**	y	w	w	w	
Ephedrine (phenylpropanol-methylamine)						yw	b					b				Y	

\* Saturated solution.

\*\* Gives *rb* color with reagent 12; remainder failed to show color reactions.

TABLE II.—PHENOLIC DERIVATIVES.

Product.	Precipitate Formation.										Reagent Number.						
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
Propadrin												b					
<i>o</i> -Hydroxy-propadrin						b											
<i>m</i> -Hydroxy-propadrin					w	w						b					
<i>p</i> -Hydroxy-propadrin					b							b					
<i>m</i> -Hydroxy, <i>p</i> -methylpropadrin												b					
<i>p</i> -Hydroxy, <i>m</i> -methylpropadrin					y		b	y				b		w			
<i>m</i> , <i>p</i> -Dihydroxy-propadrin (nor-homo-epinephrine)						Y											
Epinephrine						B											

TABLE III.—PHENOLIC DERIVATIVES.

Product.	Color Reaction.										Reagent Number.						
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
Propadrin																	
<i>o</i> -Hydroxy-propadrin		y			Y				p								
<i>m</i> -Hydroxy-propadrin			y						pb								
<i>p</i> -Hydroxy-propadrin		Y			Y				p			B					
<i>m</i> -Hydroxy, <i>p</i> -methylpropadrin									bl								
<i>p</i> -Hydroxy, <i>m</i> -methylpropadrin		y															
<i>m</i> , <i>p</i> -Dihydroxy-propadrin		bY			Y				bl								
Epinephrine		bY			B				G	R	R			R	Y		
									g	R	RB					rY	

TABLE IV.—METHYL ETHERS.

Product.	Precipitate Reactions.										Reagent Number.						
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
<i>o</i> -Methoxy-propadrin					w		rb										
<i>p</i> -Methoxy-propadrin		w															
<i>o</i> , <i>p</i> -Dimethoxy-propadrin					w		b	w				b					

TABLE V.—METHYL ETHERS.

Product.	Color Reactions.										Reagent Number.						
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
<i>o</i> -Methoxy-propadrin				p													
<i>p</i> -Methoxy-propadrin																	
<i>o</i> , <i>p</i> -Dimethoxy-propadrin		g	y	p								B				Y	

TABLE VI.—AMINO-ALCOHOLS AND CORRESPONDING KETONES.

Product.	Precipitate Formations.											Reagent Number.					
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
Propadrin												b					
Propadrone					yw	w						b					
<i>o</i> -Methyl-propadrone								b	y			b		w		w	
<i>m</i> -Hydroxy-propadrin					w	w						b					
<i>m</i> -Hydroxy-propadrone						w						b					
<i>m</i> -Hydroxy, <i>p</i> -methylpropadrin												b					
<i>m</i> -Hydroxy, <i>p</i> -methylpropadrone												b					w

TABLE VII.—AMINO-ALCOHOLS AND CORRESPONDING KETONES.

Product.	Color Reaction.											Reagent Number.					
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
<i>m</i> -Hydroxy-propadrin		y	y														
<i>m</i> -Hydroxy-propadrone		y	y														
<i>m</i> -Hydroxy, <i>p</i> -methylpropadrin		y															
<i>m</i> -Hydroxy- <i>p</i> -methylpropadrone		y															

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### THE LOCAL REACTIONS PRODUCED BY INTRAMUSCULAR INJECTION OF SOME ANTIMONY COMPOUNDS.\*

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Very little information is available concerning the physiological behavior of colloidal metallic antimony, sodium antimony iodide or antimony quinine iodide. In view of the fact that a number of antimony compounds such as tartrates, substituted phenylstibinic acids, derivatives of polyhydroxyphenols and of thio-glycollic acid are either essential or of great value in the treatment of kala-azar, bilharziasis, leishmanioses and other protozoal infections, it appeared worth while to determine whether or not a colloidal antimony aqueous solution and sodium antimony iodide or antimony quinine iodide in ethylene glycol solution could be safely used in therapy. Knowledge regarding the biological behavior of these antimonials is also desirable for comparison with the behavior of analogous bismuth compounds. Solutions of these three substances were injected intramuscularly into

\* Scientific Section, A. Ph. A., Miami meeting, 1931.