

benzoylamidoethyl]-trimethylammonium chloride, hydrochloride (III).

The diamine reacted with *p*-nitrophenyl isocyanate to give β -[*p*-nitrophenylureidoethyl]-dimethylamine; m. p. of the hydrochloride, 247–248.5°. From this were obtained β -[*p*-aminophenylureidoethyl]-dimethylamine di-

Some Unsymmetrical Disubstituted Ureas

The substances, data on which are presented in the subjoined table, were prepared by the action of nitrourea on the corresponding secondary amines.¹ They crystallize in colorless prisms from alcohol or benzene-petrol ether.

UNSYMMETRICAL DISUBSTITUTED UREAS R,R'NCONH₂

Substituents		Formula	M. p., °C.	Analyses, %	
R	R'			Calcd. N	Found N
CH ₃	(<i>n</i>)C ₆ H ₁₃	C ₈ H ₁₈ ON ₂	75	17.72	17.92
(4)CH ₃ OC ₆ H ₄	C ₂ H ₅ (CH ₃)CH	C ₁₂ H ₁₈ O ₂ N ₂	140	12.61	12.70
(4)CH ₃ OC ₆ H ₄	C ₂ H ₅ (CH ₃)CHCH ₂	C ₁₃ H ₂₀ O ₂ N ₂	130	11.86	12.17
(4)CH ₃ OC ₆ H ₄	(CH ₃) ₃ CCH ₂	C ₁₃ H ₂₀ O ₂ N ₂	155	11.86	12.13
(4)CH ₃ OC ₆ H ₄	(CH ₃) ₂ CHCH ₂ (CH ₃)CH	C ₁₄ H ₂₂ O ₂ N ₂	110	11.19	11.25

hydrochloride (IV) and the corresponding trimethylammonium chloride, hydrochloride (V). The diamine with *p*-nitrophenylacetyl chloride gave the *p*-nitrophenylacetamide, m. p. of the hydrochloride, 190–192.5°, and reduction of this yielded β -[*p*-aminophenylacetamidoethyl]-dimethylamine dihydrochloride (VI). Reduction of the methochloride of the nitro compound gave β -[*p*-

(1) Cf. Buck and Ferry, *THIS JOURNAL*, **58**, 834 (1936).

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DERIVATIVES OF N,N-DIMETHYLETHYLENEDIAMINE

No.	Formula	M. p., °C.	Analyses, %			
			Calcd.		Found	
			C	H	C	H
I	O ₂ NC ₆ H ₄ CONHCH ₂ CH ₂ NMe ₂ ·HCl	182.5–183.5	48.24	5.89	48.09	5.90
II	H ₂ NC ₆ H ₄ CONHCH ₂ CH ₂ NMe ₂ ·2HCl	190–191	47.12	6.84	47.23	6.89
III	H ₂ NC ₆ H ₄ CONHCH ₂ CH ₂ NMe ₂ ·Cl·HCl	dec. > 230	48.96	7.20	49.37	7.39
IV	H ₂ NC ₆ H ₄ NHCONHCH ₂ CH ₂ NMe ₂ ·2HCl	182–184 dec.	44.73	6.83	44.88	6.87
V	H ₂ NC ₆ H ₄ NHCONHCH ₂ CH ₂ NMe ₂ ·Cl·HCl	186	46.59	7.17	46.59	7.40
VI	H ₂ NC ₆ H ₄ CH ₂ CONHCH ₂ CH ₂ NMe ₂ ·2HCl	209.5–210.5	48.96	7.20	49.12	7.13
VII	H ₂ NC ₆ H ₄ CH ₂ CONHCH ₂ CH ₂ NMe ₂ ·Cl·HCl	155–156 dec.	50.63	7.52	50.49	7.61
VIII	C ₆ H ₅ NHCSNHCH ₂ CH ₂ NMe ₂	83–83.5	59.15	7.68	58.97	7.69
IX	H ₂ NC ₆ H ₄ SO ₂ NHCH ₂ CH ₂ NMe ₂ ·2HCl	211.5–213 dec.	37.96	6.06	37.86	6.02

aminophenylacetamidoethyl]-trimethylammonium chloride hydrochloride (VII).

With phenyl isothiocyanate the diamine formed *N*-phenyl-*N'*- β -dimethylaminoethyl thiourea (VIII) and with *p*-acetamidobenzenesulfonyl chloride it formed the *p*-acetamidobenzenesulfonamide which was hydrolyzed with hydrochloric acid to β -[*p*-aminophenylsulfonamidoethyl]-dimethylamine dihydrochloride (IX). The thiourea was

Some N-Substituted Barbituric Acids

The subjoined table contains data on five new compounds of this type. 1-*p*-Nitrophenyl-5-*i*-butyl-5-ethyl barbituric acid was obtained by nitration¹ of 1-phenyl-5-*i*-butyl-5-ethyl barbituric acid² and in turn was reduced catalytically¹ to the *p*-amino derivative. The other three substances were prepared by the conventional method from the corresponding ureas and malonic esters. All

DERIVATIVES OF BARBITURIC ACID R,R' $\begin{matrix} \diagup \text{CO-NR}'' \\ \diagdown \text{CO-NH} \end{matrix}$ CO

Substituents			Formula	M. p., °C.	Analyses, %					
R	R'	R''			Calcd.		Found			
			C	H	N	C	H	N		
C ₂ H ₅	C ₂ H ₅	(<i>n</i>)C ₆ H ₁₃	C ₁₄ H ₂₄ O ₃ N ₂	41	62.64	9.02	62.79	9.09		
C ₂ H ₅	(<i>n</i>)C ₆ H ₉	(4)C ₂ H ₅ C ₆ H ₄	C ₁₈ H ₂₄ O ₃ N ₂	107	68.31	7.65	68.21	7.81		
C ₂ H ₅	(CH ₃) ₂ CHCH ₂	(4)H ₂ NC ₆ H ₄	C ₁₆ H ₂₁ O ₃ N ₃	153	63.33	6.98	63.58	7.32		
H	H	(2)C ₂ H ₅ OC ₆ H ₄	C ₁₂ H ₁₂ O ₄ N ₂	193.5		11.29			11.47	
C ₂ H ₅	(CH ₃) ₂ CHCH ₂	(4)O ₂ NC ₆ H ₄	C ₁₆ H ₁₉ O ₅ N ₃	188		12.61			12.89	

crystallized from benzene-hexane; the hydrochlorides from absolute alcohol.

crystallized in colorless prisms, the 1-*n*-hexyl derivative from hexane, the others from alcohol.

(1) Cf. Buck, *THIS JOURNAL*, **59**, 1249 (1937).

(2) Hjort and Dox, *J. Pharmacol.*, **35**, 155 (1929).

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