

**Synthesis of Some
 ω, ω' -Bis(diguanido-oxy)Alkanes**

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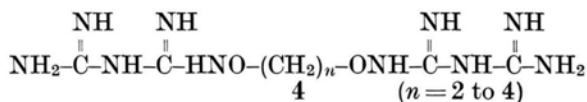
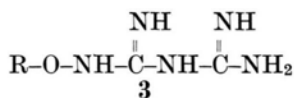
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Synthesis, Bis(diguanido-oxy) Alkanes,
Amino-oxy Alkanes

Synthesis of a few bis(diguanido-oxy)-alkanes which are likely to possess good bacteriostatic properties have been reported.

Amino-oxy alkanes (1) are reported to have significant bacteriostatic activity^{1,2} *in vitro*. The maximum bacteriostatic index³ has been found to occur at C₁₂-C₁₄. Replacement of amino group by guanidino group resulted in alkoxy guanidines (2) with greater activity. The work of MAMALIS *et al.*⁴ shows that the alkoxy diguanides (3) have a sharp activity as compared to the alkoxy guanides. These results suggest that bis-(diguanido-oxy)alkanes may exhibit still pronounced bacteriostatic activity. The present report deals with the synthesis of some bis-(diguanido-oxy)alkanes (4).

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ω - ω' -Bis-(diguanido-oxy)alkanes

The bis-(amino-oxy)alkane dihydrobromide⁵ (0.1 mole), dicyanidamide (0.2 mole) and ethanol (100 ml) were heated under reflux for 6-8 hours. After, filtration if necessary from any solid, the mixture was evaporated, then treated with alcoholic hydrogen bromide and dry ether. The hydrobromides of 4, were gummy and were therefore, identified through their dipicrates (*cf.* Table I).

All the melting points are uncorrected. The microanalyses were done by Dr. S.S. LELE, Chemistry Department, University of Baroda, Baroda.

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Table I. ω, ω' -Bis(diguanido-oxy)alkane (4).

<i>n</i>	in Derivative* 4	Solvent of crystallization	m.p. [°C] (dec)	Mol. formula [mol. wt.]		Analysis [%]		
						C	H	N
2	Dipicrate	DMF-alcohol	266-68	C ₁₈ H ₂₂ N ₁₆ O ₁₆ (718)	Calcd	30.09	3.06	31.20
					Found	30.48	3.20	31.21
3	Dipicrate	DMF-alcohol	250-53	C ₁₉ H ₂₄ N ₁₆ O ₁₆ (732)	Calcd	31.27	3.28	30.62
					Found	31.08	3.10	30.53
4	Dipicrate	DMF-water	254-56	C ₂₀ H ₂₆ N ₁₆ O ₁₆ (746)	Calcd	32.25	3.49	30.10
					Found	31.77	3.62	29.72

* After crystallization these dipicrates were washed successively with alcohol and ether to remove traces of dimethyl formamide.

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