N^4-(BIGUANIDYL-SUBSTITUTED)-N^1-BENZOYL SULPHANILAMIDES

CONSIDERING the interesting results in malarial chemotherapy, which have been noticed by Bami, Iyer and Guha[1] working in the field of N^4-substituted sulpha-biguanides, it was thought worthwhile to extend this field to include the highly active N^1-sulphanilyl-benzamide in view of the observation made by Sen Gupta,[2] *et al.* and Bose and Ghosh[3] that N^1-benzoylsulphanilamide possesses high antibacterial activity against certain strepto- and staphylo-infections *in vitro*, besides possessing high chemotherapeutic activity against Flexner organism and a very low toxicity. Bami, *et al.* have reported that some of the sulpha-biguanides possess suppressive antimalarial activity "when tested at relatively large doses" though not coming upto the standard of either paludrine or quinine.[4]

It was, therefore, considered desirable to study the influence of a substituted biguanide molecule attached to the N^4-position of N^1-benzoyl-sulphanilamide.

Some N^4-substituted biguanidyl-N^1-benzoyl-sulphanilamides of type (I) have now been synthesised for studying their effect against malarial and certain coccal infections.

$RNH-C(=NH)-NH-C(=NH)-NH-C_6H_4-SO_2NHCO.C_6H_5$ (where R=H —, substituted aryl—etc.)

Type I

The compounds have been prepared by refluxing N^1-sulphanilyl-benzamide hydrochloride with the appropriate cyanoguanidines in pyridine medium (ethanol unsuccessful) for 3-8 hours. All the sulpha-biguanides have been isolated and characterised as white powdery hydrochlorides, some being crystallisable from organic solvents; others being uncrystallisable could only be purified by removing the starting materials with suitable solvents. The compounds are amphoteric in nature. All the sulpha-biguanides (*vide* Table) excepting compound No. 4, get decomposed while melting.

No.	R in compounds Type I	M.P., °C.
1	H-	240-41
2	C_6H_5-	264
3	*p*-Cl-C_6H_4-	215-16
4	*m*-Cl-C_6H_4-	239
5	*p*-Br-C_6H_4-	266-68
6	*p*-I-C_6H_4-	230-32
7	*p*-CH_3O-C_6H_4-	213-14
8	*p*-CH_3-C_6H_4-	225-26

Full details will be published elsewhere.

We are indebted to the Indian Council of Medical Research for the award of a Fellowship to one of us (P. R. Gupta) and also to Messrs. Bengal Immunity Co., Ltd., Calcutta, for the gift of sulphanilyl benzamide.

Organic Chemistry Labs., P. R. GUPTA.
Dept. of Pure & Applied Chemistry, P. C. GUHA.
Indian Institute of Science,
Bangalore-3,
July 26, 1950.

1. Bami, H. L., Iyer, B. H. and Guha, P. C., *Curr. Sci.*, 1947, **16**, 386. 2. Sen Gupta, P. N. and Bose, A. N., *Ann. Biochem. Exptl. Med.*, 1946, **6**, 45. 3. Bose, A. N. and Ghosh, J. K., *Ind. J. Med. Res.*, 1949, **32**, 61. 4. Bami, H. L., *et al.*, *Curr. Sci.*, 1949, **18**, 50-52.