CHEMOTHERAPY OF BACTERIAL INFECTIONS

Part VII. Synthesis of Sulphanilamide Derivatives of the Pyrimidine Group

BY K. GANAPATHI, C. V. DELIWALA AND M. V. SHIRSAT

(*From the Haffkine Institute, Parel, Bombay*)

Received February 26, 1942

(Communicated by Lt.-Col. S. S. Sokhey, M.A., M.D., I.M.S.)

IN a previous publication,[1] one of us reported that the guanidine radical in sulphanilylguanidine does not undergo condensation with the β-ketonic esters, β-diketones and α : β-unsaturated ketones as readily as guanidine or amidines. Further studies of these reactions showed that, in some cases, such a condensation could be effected in the presence of sodium ethoxide and this paper presents the results of these investigations.

Sulphanilylguanidine* condensed with ethyl acetoacetate in the presence of sodium ethoxide to yield a compound now identified to be 2-sulphanilamido-4-methylpyrimidone† (*vide infra*). This compound could also be prepared by condensing acetsulphanilylguanidine with ethyl acetoacetate and hydrolysing the corresponding acetsulphanilamido derivative obtained with about 4 N hydrochloric acid. Similarly, α- methyl, ethyl, *n*-butyl, *iso*-amyl and *n*-hexyl derivatives of ethyl acetoacetate condensed with sulphanilylguanidine yielding the corresponding 2-sulphanilamido-4-methyl-5-alkylpyrimidones in varying yields. These compounds as a class were soluble in alkali, very stable and exhibited the properties of the pyrimidones. In these condensations, only one product could be isolated in each case. Under these conditions, sulphanilylguanidine failed to condense with ethyl malonate and ethyl cyanoacetate.

For sulphanilylguanidine, two structures (I) and (II) are possible and it is very difficult from purely chemical methods to decide unequivocally

---

* Just before the foot-note in the paper of White *et al.*,[2] establishing the identity of sulphanilylguanidine with the product obtained by Buttle *et al.*[3] by the condensation of sulphanilamide with dicyandiamide, came to our notice, we also had come to the same conclusion not only by comparing the two compounds as such, but also the products obtained from them on condensation with ethyl acetoacetate.

† All the compounds described as pyrimidones in this paper can have the tautomeric 6-hydroxypyrimidine structure as well.