

# Utility of Cyano Acid Hydrazone in Heterocyclic Chemistry: A New Route for the Synthesis of New 1,2,4-Triazolo[1,5-a]pyridines and 1,2,4-Triazolo[1,5-a]isoquinolines

Abdel Haleem Mostafa Hussein

Chemistry Department, Faculty of Science, Al-Azhar University, Assiut 71524, Egypt

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1,2,4-Triazolo[1,5-a]pyridines, 1,2,4-Triazolo[1,5-a]isoquinolines

Cyano acid hydrazone **1** was condensed with cyclohexanone in refluxing ethanolic piperidine to yield the hydrazone **4**. Compound **4** reacts with arylidines **5a–i** to yield the 1,2,4-triazolo[1,5-a]pyridines **7a–i**. Compound **4** also reacts with mixtures of aliphatic aldehydes and different active methylene reagents to yield 1,2,4-triazolo[1,5-a]pyridines **8a–d**. Similarly reaction of **4** with arylazomalononitrile to yield the triazolopyridines **10a–d**. Reaction of **4** with aromatic aldehydes gives **12a–e**. Compound **8a** reacts with elemental sulfur to yield the thieno-1,2,4-triazolopyridine **13**. This underwent cycloaddition with acrylonitrile,  $\omega$ -nitrostyrene, chalcone, N-phenylmaleimide, dimethylacetylenedicarboxylate and tetracyanoethylene yielding the isoquinolines **15–18**. All new compounds have been characterized by their IR,  $^1\text{H}$  NMR and mass spectra.

Reprint requests to A. H. M. Hussein.