THE REACTION OF TRICHLOROACETONITRILE WITH 2-CYANO-3-PHENYL-PENT-2-ENEDINITRILE: SYNTHESIS OF SOME NEW PYRIDINE AND PYRIDO-FUSED DERIVATIVES

Nadia H. Metwally, Fathy M. Abdelrazek*, Nehal A. Sobhy†

Chemistry Department, Faculty of Science, Cairo University, Giza, Egypt
*E-mail: prof_fmrazek@yahoo.com

2-Cyano-3-phenylpent-2-enedinitrile 1 reacts with trichloroacetonitrile 2 to afford the pyridine 4 presumably via the intermediate 3 similar to our previous work2. The trichloromethyl moiety in 4 could be substituted2 by OH, OMe or OEt upon its reaction with water, methanol or ethanol respectively to afford the pyridines 5a-c (R= H, Me, Et). These latter compounds could be cyclized into the pyrido[2,3-d] pyrimidines 6a-c (R= H, Me, Et) upon reaction with formamide. Compound 4 reacts with hydrazine hydrate to give the pyrazolo[3,4-b]pyridine 8 assumingly via the hydrazide intermediate 7. Compound 4 was transformed into the pyridine dicarboxamide 9 when boiled with conc. HCl3. This latter compound could be cyclized into the pyrido[2,3-d]pyrimidine 10 upon reaction with triethylorthofomate.

References:
† This work is abstracted in part from the M. Sc. Thesis of Mrs. N. A. Sobhy.

Scheme 1