Cyanoacetylation of 5-Aminopyrazole: Synthesis of 2-(1-Aryl-4-substituted pyrazolo[3,4-d]pyrimidin-6-yl)acetonitrile Derivatives

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N1-Substituted-5-amino-4-cyanopyrazoles were cyanoacetylated with a mixture of cyanoacetic acid and acetic anhydride. Cyclization with POCl₃ gave 4-chloro-pyrazolo[3,4-d]pyrimidine derivatives. From the reaction with hydrazine and arylhydrazines, the hydrazinyls and their oxidized forms, the azo products, were obtained. The structure of the compounds obtained has been confirmed by $^1$H and $^{13}$C NMR spectroscopy.

Key words: Cyanoacetylations, Cyanopyrazoles, Pyrazolo[3,4-d]pyrimidines, Acetonitrile Derivatives