

One-pot, three component reactions between isocyanides and dialkyl acetylenedicarboxylates in the presence of phenyl isocyanate: Synthesis of dialkyl 2-(alkyl/arylimino)-2,5-dihydro-5-oxo-1-phenyl-1H-pyrrole-3,4-dicarboxylate

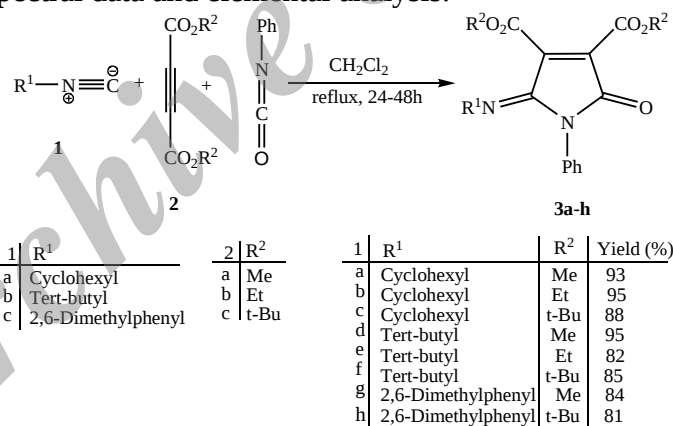
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Pyrrole derivatives are an important class of heterocycles. Nitrogen heterocycles are of synthetic interest because they constitute an important class of natural and non-natural product, many of which exhibit useful biological activity [1]. Isocyanide-based multicomponent reactions (IMCR) now occupy a position of importance in synthetic organic chemistry, mainly due to the contributions of Ugi and co-workers [2]. Organic isocyanates are powerful tools in organic synthesis [3-5]. Generally, isocyanates easily undergo polar cycloadditions with a large variety of unsaturated substrates [6]. The reactivity of nucleophilic carbenes such as isocyanides towards dimethyl acetylenedicarboxylate (DMAD) is well documented [7, 8]. In summary, we have found that the reaction of alkyl/aryl isocyanides with dialkyl acetylenedicarboxylates in the presence of phenyl isocyanate leads to the one-pot and simple synthesis of highly functionalized 2,5-dihydro-5-oxo-1-phenyl-1H-pyrrole derivatives. The structure of compounds **3a-h** was deduced from their IR, ¹H NMR, ¹³C NMR, mass spectral data and elemental analysis.



References

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