

البحث الخامس (رقم 5 في قائمة البحوث المقدمه للترقيه و31 في قائمة البحوث الكلية)

Title	A facile, practical and metal-free microwave-assisted protocol for mono- and bis-[1,2,4]triazolo[1,5- <i>a</i>]pyridines synthesis utilizing 1-amino-2-imino-pyridine derivatives as versatile precursors بروتوكول سهل وعملي وخالي من المعادن بمساعدة الميكروويف لتخليق لأحادي وثنائي- [1،2،4] تريازولو [1،5-أ] بيريدينات باستخدام مشتقات 1-أمينو-2-إيمينو-بيريدين كسلائف متعددة الاستخدامات
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Abstract:

A facile and effective assembly of several substituted functionalized mono- and bis-[1,2,4]triazolo[1,5-*a*]pyridines from conveniently attainable 1-amino-2-imino-pyridines has been established. Using microwave irradiation speeds up the reaction efficiently, proceeding with a higher rate and yields than with conventional heating. In the presented protocol, a broad variety of carboxylic acids could be employed effectively to synthesize the respective derivatives *via* direct metal-free C–N bond construction. Interestingly, other substrates such as aldehydes (or their arylidene malonitriles), phenyl isothiocyanate, glyoxalic acid, and acrylonitriles could also provide the corresponding 1,2,4-triazolo[1,5-*a*]pyridines successfully. This versatile and convergent approach performs well with both deactivating and activating substrates in an environmentally benign manner compared with other already reported protocols. Other notable merits of the current strategy involve no need for column chromatography, no tedious work-up, and a direct pathway for the fast design of triazolopyridine frameworks. The identity of the newly synthesized compounds was established using

several spectroscopic techniques, and X-ray single-crystal tools were employed to authenticate the suggested structures of some representative samples.