A Fast and Efficient One-Pot Microwave Assisted Synthesis of 1,2,4-Oxadiazoles Variously Di-Substituted

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Supporting Information

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General Methods. All reagents and solvents were as obtained by commercial source. The *N*-Boc and *N*-Cbz derivatives of the α–amino acids were prepared according standard methods.[1]

All conventional reactions were run under dry nitrogen using standard techniques unless otherwise stated. All solvents were dried by usual methods and distilled under argon. Thin-layer chromatography (TLC) analysis was performed with Merck Kieselgel 60 F254 plates and visualized using UV light at 254 nm, $FeCl_3$ (5% $FeCl_3$ in H_2O), and $KMnO_4$ staining. Microwave reactions were conducted using CEM Discover Synthesis Unit (CEM Corp., Matthews, NC). The instrument consists of a continuous focused microwave power delivery system with operator selectable power output from 0 to 300W. Reactions were performed in a heavy-walled glass tubes sealed with a septum. The temperature of the content of the vessel was monitored using a calibrated infrared temperature control mounted under the reaction vessel. After complete irradiation, the reaction tube was cooled with high-pressure air until the temperature had fallen below 35 °C. ^{1}H NMR, ^{13}C NMR and ^{19}F-NMR were recorded at 300, 75.4 and 282 MHz using $CDCl_3$ solutions and TMS as an internal standard. Chemical shifts are reported in parts per million (ppm, d) relative to tetramethylsilane (TMS, d 0.00) or relative to residual solvent signals ($CDCl_3$, d 7.27 ppm d 2.54). Coupling constants (*J* values) are given in Hz, and peak multiplicities are denoted by s (singlet), bs (broad singlet), d (doublet), dd (doublet of doublets), pd (pseudo doublet), m (multiplet), q (quartet), and t (triplet). Optical rotations were measured at ambient temperature in a 10 cm cell, and *c* is expressed in g/100 mL. Melting points were determined in open capillary tubes and are uncorrected.

(1) Bodanszky, M.; Bodanszky, A. The Practice of Peptide Synthesis; Sprinter Lab. Manual: Berlin, 1994.