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Vilsmeier Reagent Initialed Sequential One-pot Multicomponent Synthesis of *N*,*O*-Disubstituted Glycolamides as Dipeptidyl peptidase 4 inhibitors

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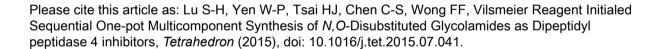
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ACCEPTED MANUSCRIPT

Vilsmeier Reagent Initialed Sequential One-pot

Multicomponent Synthesis of N,O-Disubstituted

Glycolamides as Dipeptidyl peptidase 4 inhibitors

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Key words: Glycolamides ester, Formyloxylation, Vilsmeier-type reaction, Decarbonylation, Esterification

Abstract: A series of N,O-disubstituted glycolamide derivatives have been successfully synthesized through Vilsmeier reagent initialed sequential one-pot multicomponent procedure from α -chloro N-arylacetamides with formamide/PBr₃ and acid chloride. The synthesis is straightforward and involved Vilsmeier formyloxylation reaction, decarbonylation, and esterification three steps. The strategy was also applicable to α -chloro N-(naphthalenyl)acetamide to prepare the corresponding N,O-disubstituted glycolamide products. All of N,O-disubstituted glycolamides were evaluated against dipeptidyl peptidase 4 inhibitory activity. Based on the inhibitory results, several of O-furan-2-carbonyl and O-quinoline-8-sulfonyl N-aryl glycolamide compounds possessed the better effectively inhibition of dipeptidyl peptidase 4.

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