

Accepted Manuscript

Title: Targeting a Mirabegron Precursor by BH_3 -Mediated Continuous Flow Reduction Process

Authors: Sonia De Angelis, Claudia Carlucci, Modesto de Candia, Gabriele Rebuzzini, Paolo Celestini, Massimiliano Riscazzi, Renzo Luisi, Leonardo Degennaro



PII: S0920-5861(17)30673-9
DOI: <https://doi.org/10.1016/j.cattod.2017.09.058>
Reference: CATTOD 11063

To appear in: *Catalysis Today*

Received date: 27-7-2017
Revised date: 18-9-2017
Accepted date: 29-9-2017

Please cite this article as: Sonia De Angelis, Claudia Carlucci, Modesto de Candia, Gabriele Rebuzzini, Paolo Celestini, Massimiliano Riscazzi, Renzo Luisi, Leonardo Degennaro, Targeting a Mirabegron Precursor by BH_3 -Mediated Continuous Flow Reduction Process, *Catalysis Today* <https://doi.org/10.1016/j.cattod.2017.09.058>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Targeting a Mirabegron Precursor by BH₃-Mediated Continuous Flow Reduction Process

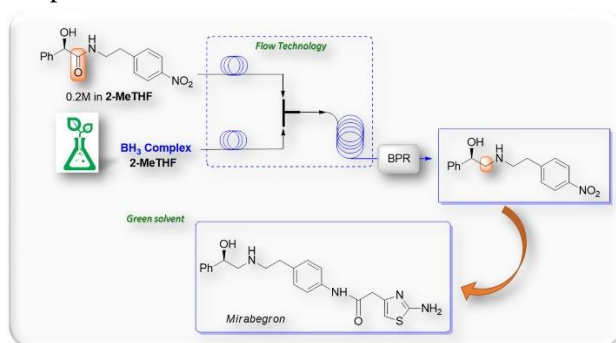
Sonia De Angelis,^a Claudia Carlucci,^a Modesto de Candia,^a Gabriele Rebuzzini,^b Paolo Celestini,^b Massimiliano Riscazzi^b Renzo Luisi,^{*,a} and Leonardo Degennaro^a

^a FLAME-Lab - Flow Chemistry and Microreactor Technology Laboratory; Department of Pharmacy — Drug Sciences, University of Bari “A. Moro” Via E. Orabona 4, Bari 70125, Italy.

^b COSMA S.p.A, Via Colleoni 15/17, Ciserano (BG) 24040, Italy

E mail: renzo.luisi@uniba.it

Graphical abstract



CATTOD Highlight

- Flow chemistry set up for pharmaceutical applications
- Continuous flow reduction using BH₃ solutions
- Straightforward and green preparation of Mirabegron precursor

Abstract

A continuous-flow reduction of (R)-2-hydroxy-N-[2-(4-nitrophenyl)ethyl]-2-phenylacetamide, involved in the synthetic pathway of Mirabegron, has been developed. This study demonstrated the possibility to safely handling BH₃ complexes within microfluidic reactors using 2-MeTHF as greener alternative to traditional solvents, and without requiring any additive such as DMI. In addition, NMR and HPLC purity analysis revealed that the sole by-product of this process is the diamine **3**, which wouldn't affect the following synthetic steps towards Mirabegron.

1. Introduction

The phenylethanolamine core occurs in important molecules such as neurotransmitter noradrenaline and it is also contained in many naturally occurring molecules such as several alkaloids and compounds of pharmaceutical interest with different activities ranging from bronchodilation to antifungal activity (Fig. 1). [1,2]

Download English Version:

<https://daneshyari.com/en/article/6504395>

Download Persian Version:

<https://daneshyari.com/article/6504395>

[Daneshyari.com](https://daneshyari.com)