Supporting Information

Enantioselective Mannich reaction promoted by chiral phosphinoyl aziridines

Aleksandra Buchcić, Anna Zawisza, Stanisław Leśniak, Justyna Adamczyk, Adam Marek Pieczonka and Michał Rachwalski *
Department of Organic and Applied Chemistry, University of Łódź, Tamka 12, 91-403 Łódź, Poland

List of contents

1. Copies of ¹H, ¹³C and ³¹P NMR spectra-----------------------S2-S5
2. HPLC chromatograms of Mannich products-----------------S6-S11

Catalysts 2019, 9; doi: FOR PEER REVIEW www.mdpi.com/journal/catalysts
1. Copies of $^1$H, $^{13}$C and $^{31}$P NMR spectra

The $^1$H, $^{13}$C and $^{31}$P NMR of 9:

$^1$H NMR (600 MHz, CDCl$_3$):

$^{13}$C NMR (150 MHz, CDCl$_3$):
The $^1$H, $^{13}$C and $^{31}$P NMR of 14:

$^1$H NMR (600 MHz, CDCl$_3$):
$^{13}$C NMR (150 MHz, CDCl$_3$):

$^{31}$P NMR (243 MHz, CDCl$_3$):
2. HPLC chromatograms of Mannich products

(3R,4S)-3-Hydroxy-4-(methoxyphenylamino)-4-(4-nitrophenyl)butan-2-one 15 ee (96%) determined by HPLC analysis: Chiralcel AD-H column, Hexane : PrOH = 85:15, flow = 1.0 mL/min, retention times (min): 43.46 (major), 54.45 (minor).

ee (60%) determined by HPLC analysis: Chiralcel AD-H column, Hexane : PrOH = 85:15, flow = 1.0 mL/min, retention times (min): 37.83 (major), 46.55 (minor).
\[ \text{ee (50\%)} \] determined by HPLC analysis: Chiralcel AD-H column, Hexane : \text{PrOH} = 85:15, flow = 1.0 mL/min, retention times (min): 46.00 (major), 57.78 (minor).

\[ \text{ee (89\%)} \] determined by HPLC analysis: Chiralcel AD-H column, Hexane : \text{PrOH} = 85:15, flow = 1.0 mL/min, retention times (min): 13.13 (major), 18.98 (minor).
(3R,4S)-3-Hydroxy-4-(methoxyphenylamino)-4-(2-methoxyphenyl)butan-2-one 17

ee (82%) determined by HPLC analysis: Chiralcel AD-H column, Hexane : iPrOH = 85:15, flow = 1.0 mL/min, retention times (min): 22.23 (major), 25.63 (minor).
(3R,4S)-3-Hydroxy-4-(methoxyphenylamino)-4-(4-methoxyphenyl)-butan-2-one

ee (90%) determined by HPLC analysis: Chiralcel AD-H column, Hexane:iPrOH = 85:15, flow = 1.0 mL/min, retention times (min): 6.73 (minor), 8.67 (major).
(3R,4S)-3-Hydroxy-4-(methoxyphenylamino)-4-(4-bromophenyl)-butan-2-one 19

ee (91%) determined by HPLC analysis: Chiralcel AD-H column, Hexane : iPrOH = 85:15, flow = 1.0 mL/min, retention times (min): 7.82 (minor), 11.52 (major)
Catalysts 2019, 9, x FOR PEER REVIEW

![Chart 1](image1.png)

<table>
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<th>Ret Time (min)</th>
<th>Start (min)</th>
<th>End (min)</th>
<th>Compound</th>
<th>Amount</th>
<th>Units</th>
<th>Area (µA/sec)</th>
<th>Weight (µg)</th>
<th>% Area</th>
<th>Width (min)</th>
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<td>0.23 (4δ)</td>
<td>5δ</td>
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![Chart 2](image2.png)

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![Chart 3](image3.png)