Article

# A green and efficient method for Nucleophilic Aromatic substitution of Nitrogen-containing fused heterocycles 

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## Compound 1




Compound 2



Compound 3


| \% |  | $\stackrel{\text { 等 }}{ }$ | $\stackrel{\text { P }}{+}$ | $\stackrel{\text { ¢ }}{\substack{\text { a }}}$ |  | $\bar{\square}$ | 筞 | 피ํ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |




Compound 4



## Compound 5





Compound 6



## Compound 7





## Compound 8



## Compound 9



## Compound 10



## Compound 11



## Compound 12




| 190 | 180 | 170 | 160 | 150 | 140 | 130 | 120 | 110 | 100 |  | 80 | 70 | 60 | 50 | 40 | 30 | 20 | 10 | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 190 | 180 | 170 | 160 | 150 | 140 | 130 | 120 | 110 | 100 | f1 (ppm) | 80 | 70 | 60 | 50 | 40 | 30 | 20 | 10 | - |

## Compound 13

$\stackrel{8}{\square}$ $\qquad$ 8



$\stackrel{9}{3}$




## Compound 14





\begin{abstract}




## Compound 15



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$\stackrel{\text { ® }}{\stackrel{\circ}{\mid}}$
等


Compound 16




Compound 17





Compound 18




Compound 19




Compound 20

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Compound 21



## Compound 22




## Compound 23



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## Compound 24



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