

# Concurrent Cascade Synthesis of Pyrazines Relevant to Food Industry under Biocompatible Conditions

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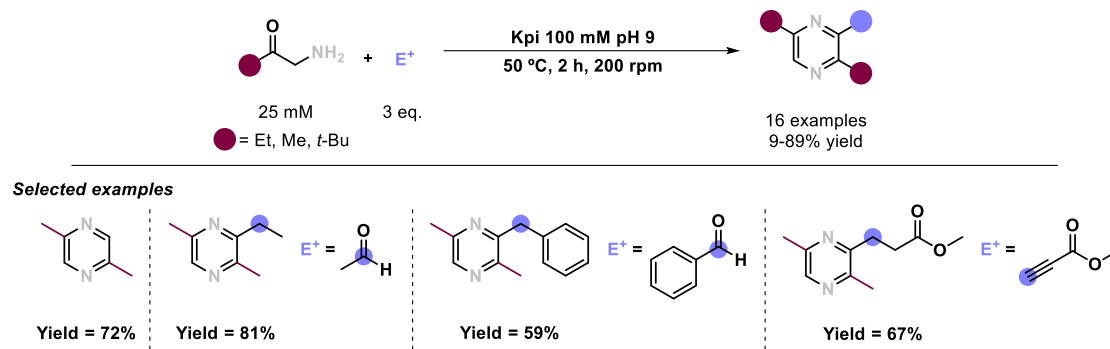
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Pyrazines and, more precisely, alkyl pyrazines, are key additives in food industry which mimic the organoleptic properties of ingredients like coffee or cocoa, such as roasty, nutty or earthy smells. Despite the interest that both the scientific and industrial communities have shown in recent decades regarding these products and their derivatives, a viable solution for the selective synthesis of pyrazines in a reproducible manner within the confines of current food industry regulations has yet to be found. Consequently, the industry is compelled to continue obtaining this valuable additives as complex mixtures with low yields through extraction from molasses.<sup>1</sup> In this work, we propose a simple and selective concurrent cascade procedure for the synthesis of these target molecules through a dimerisation followed by incorporation of electrophiles of different natures, under completely environmentally friendly conditions, establishing the foundations for a future efficient industrial process for their mass production.



**Figure 1.** Schematic representation of the synthesis of pyrazines under biocompatible conditions.

<sup>1</sup> Mortzfeld, F. B.; Hashem, C.; Vranková, K.; Winkler, M.; Rudroff, F. *Biotechnol. J.* **2020**, *15*. 2000064.