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New Chitosan Beads as Efficient Organocatalysts for Accessing 1,2,3-Triazoles

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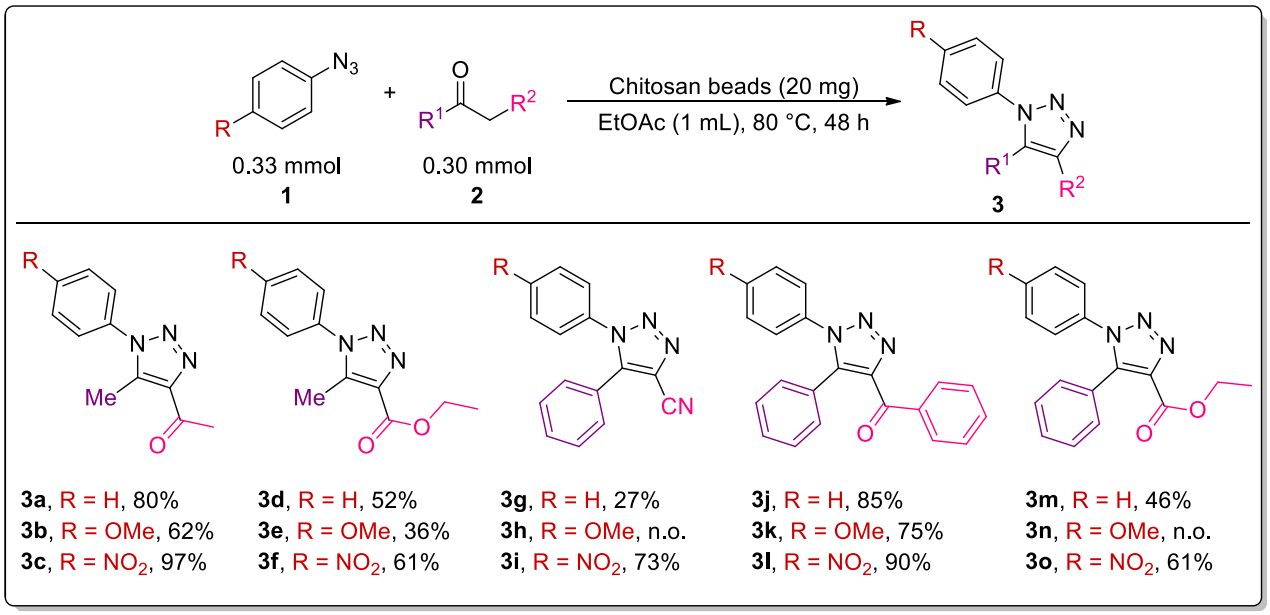
ABSTRACT

1,2,3-Triazoles constitute a relevant class of *N*-heterocyclic compounds. They are widely found in pharmaceuticals due to their various biological activities. One of the most common methodologies for their synthesis is the [3+2] cycloaddition reaction using azides.[1]

Concomitantly, modified chitosan emerges as an organocatalyst because of its environmental advantages. Chitosan is a low molecular weight organic molecule with exceptional qualities, including non-toxicity, biodegradability, biocompatibility, and low cost.[2]

Based on this, we report a new methodology to validate the performance of developed chitosan beads as an organocatalyst in azide-ketone [3+2] cycloaddition reactions for the synthesis of 1,2,3-triazoles. The best reaction conditions for this synthesis use 0.33 mmol of azide **1**, 0.30 mmol of ketone **2**, 20 mg of chitosan beads as the catalyst, and ethyl acetate as the solvent, at 80 °C for 48 hours. Using this protocol, thirteen compounds were obtained, with yields ranging from 27% to 97% (Scheme 1).



Scheme 1. Scope of the reaction of azides **1** with ketones **2** to form 1,2,3-triazoles **3**.

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