

PEC-NH₂ as a novel organocatalyst for the synthesis of 2-arylselanyl-1,3-diketones

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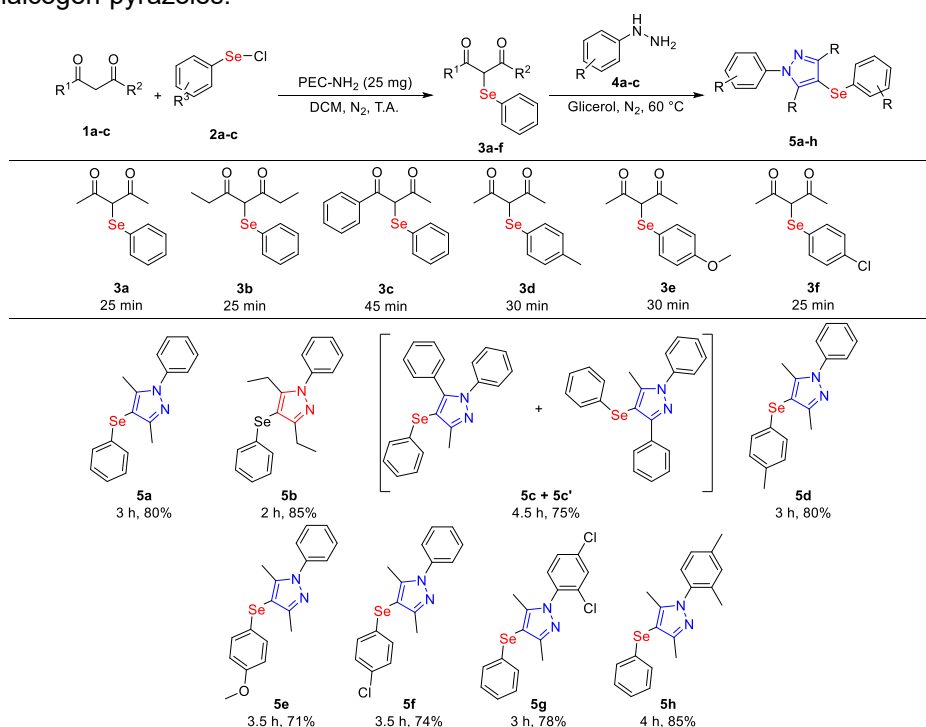
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ABSTRACT

Organocatalysis is often ranked as one of the greenest catalysis strategies mainly due to its advantages over conventional metal catalysis, in which noble and potentially toxic metals are employed. Pectin (Pec) is a natural linear polysaccharide built up of α -(1 \rightarrow 4)-D-galacturonic acid units in which some of the carboxyl groups are esterified with methanol or/and acetyl groups at the O-2 or/and O-3 positions. To the best of our knowledge, the use of Pec in organocatalysis was not reported, likely due to its low reactivity. but the highly functionalized backbone of Pec (–OH and –COOH groups, mostly) offers possibilities to increase its reactivity through derivatization. To verify this hypothesis, we synthesized a Pec-derivative functionalized with amino groups (PEC-NH₂) and investigated its ability to catalyze the synthesis of 2-arylselanyl-1,3-diketones. 1,3-Dicarbonyl compounds are attractive key intermediates in the synthesis of important compounds such as pyrazoles, benzodiazepines, isoxazoles, and pyrroles, for example. Herein we investigate the organocatalytic activity of PEC-NH₂ in the synthesis of 2-arylselanyl-1,3-diketones, which can be applied for the direct synthesis of chalcogen-pyrazoles.



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