

Sultine synthesis via trimethylenemethane cycloaddition to sulfur dioxide

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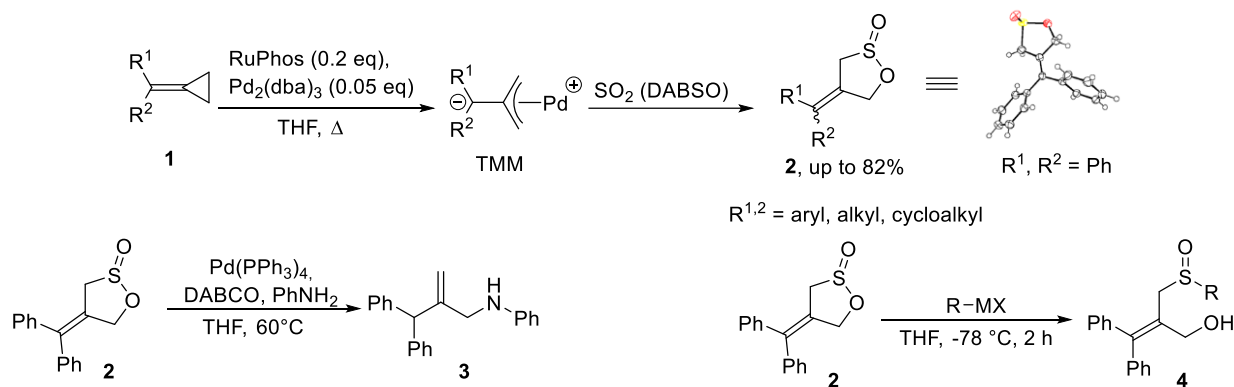
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Keywords: Trimethylenemethane, sulfur dioxide, palladium catalysis, [3+2] cyclisation

Trimethylenemethane (TMM) is a known reaction intermediate, which can be represented as 4 carbon conjugated structure of diradical or zwitterion.¹ TMM has been shown to react with carbonyl-, iminyl-, cyano- groups and C-C double or triple bonds to form cyclic compounds. Specifically, its reaction with CO₂ has been previously reported.²

Herein, we unveil novel TMM reactivity towards SO₂. TMM is generated *in situ* from easily obtainable methylenecyclopropanes **1** through palladium catalysis, followed by the cycloaddition to SO₂, which yields γ -sultines **2**.

Investigation of γ -sultine **2** reactivity has shown that these products are stable, but seemingly can regenerate TMM through palladium catalysis, and thus react with nucleophiles under milder conditions than described in literature.³ Furthermore, γ -sultines **2** can be opened by carbon nucleophiles generating sulfoxides **4**.



Acknowledgements:

E. Š. thanks RTU Master student grant ZM-2024/19 for financial support.

References

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