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Ruthenium-Catalyzed C–H Alkenylation of Quinones to Introduce SuFEx Functionalization: A Potential Building Block for Bioactivity Valorization

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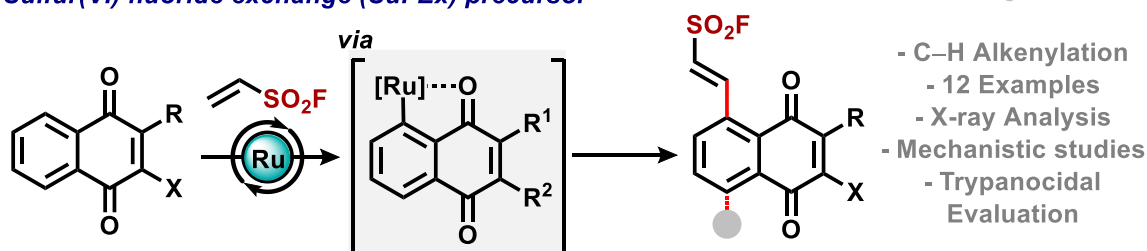
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ABSTRACT

The development of organic molecule synthesis with potential biological activities is a continually evolving field of chemistry. The use of C–H activation techniques mediated by transition metal catalysis has introduced new methods for modifying previously unreactive molecular sites,¹ enabling the construction of a wide variety of compounds.² Another significant advancement is the development of click reactions,³ inspired by nature's efficient heteroatom linkage mechanisms. A recent example is the sulfur(VI) fluoride exchange (SuFEx),⁴ which provides a methodology for creating molecular connections related to sulfur(VI) reactivity. In this work, 1,4-naphthoquinoidal/SuFEx hybrids were synthesized through Ru-catalyzed C–H alkenylation of 1,4-naphthoquinones, achieving moderate to good yields. These molecules were tested for their trypanocidal activity, yielding promising results. Mechanistic investigations supported understanding the alkenylation mechanism. This study is the first report of quinoidal derivatives containing the SuFEx component, allowing future derivatizations to obtain a large and diverse library of compounds.

Sulfur(VI) fluoride exchange (SuFEx) precursor



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