Chemistry Seminar

Monday, 6 March 2023 at 16:00 in 303 Schrenk Hall

Metal-Free Photoredox Catalysis for the S-Trifluoromethylation of Thiols

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ABSTRACT: The S-Trifluoromethylation of thiols provides access to pharmaceutically interesting compounds. The current synthetic methods for this trifluoromethylation reaction involve the use of either expensive noble metal-based organometallic catalysts and expensive or hazardous reagents. We have demonstrated a convenient visible-light photoredox catalyzed S-trifluoromethylation of various thiols under metal-free conditions, using the cost-effective sodium trifluoromethanesulfinate (Langlois regent) and diacetyl as the photocatalyst. This novel organocatalysis-based synthetic method provides a convenient and cost-effective alternative to the transition-metal catalyzed photoredox reactions.