

Catalytic Transfer Hydrogenation of 1,3-diphenyl-2-propen-1-one with Palladium on Carbon and Formate Salts

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Chalcones have become significantly important due to their biological applications including antifungal, antiviral, antimicrobial, anti-allergic, anti-inflammatory and anti-cancer properties. Previous mechanistic investigations into the conjugate reduction of chalcones by catalytic transfer hydrogenation (CTH) with palladium on carbon (Pd/C) and formate salts were not thoroughly supported. A full understanding of this process would be useful to such an important class of biomolecules. Therefore, conjugate reduction of 1,3-diphenyl-2-propen-1-one was investigated with CTH using formate salts and Pd/C. Experiments varying substrate concentration and reaction pH were performed. Deuterated sodium formate was utilized to determine if hydrogen transfer from the formate to palladium is involved in the rate determining step, as suggested in other catalytic transfer hydrogenation reactions. A mechanistic discussion will be presented.

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