Catalyst-Free Transfer Hydrogenation of Activated Alkenes Exploiting Isopropanol as the Sole and Traceless Reductant

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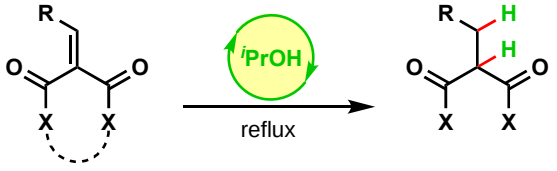
Abstract:

Both metal-catalyzed and organocatalytic transfer hydrogenation reactions are widely employed for the reduction of C=C, C=O and C=N bonds. Described herein is an unconventional catalyst-free transfer hydrogenation reaction of activated alkenes using isopropanol as an eco-friendly reductant and solvent. The reaction gives convenient synthetic access to a wide range of substituted malonic acid half oxyesters (SMAHOs) in moderate to good yields. Mechanistic investigations point towards an unprecedented hydrogen bond-assisted transfer hydrogenation process.



- ☑ H_2 gas free
- ☑ Green Solvent
- ☑ Broad Scope
- ☑ Metal/Catalyst-Free
- ☑ Zero Waste
- ☑ FG Compatibility
- ☑ Atom Economic
- ☑ Low Cost
- ☑ Operational Simplicity

References:

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