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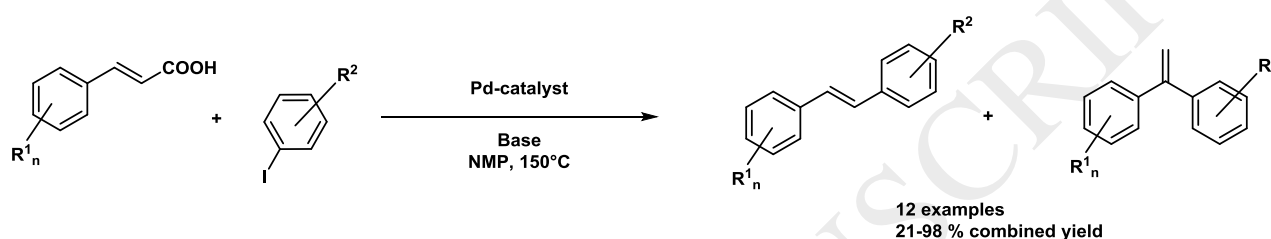
Stilbene synthesis through decarboxylative cross-coupling of substituted cinnamic acids with aryl halides

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Graphical Abstract



Highlights

- Pd-catalyzed decarboxylative cross-coupling of cinnamic acids and aryl iodide was studied.
- Both stilbenes and corresponding 1,1-biphenyl ethylene were produced at initial time.
- After optimization, homogeneous $\text{Pd}(\text{OAc})_2$ gave up to 90% cross-coupling products combined yields with higher selectivity toward the stilbenes.
- Pd/C and home-made Pd/SiO₂ heterogeneous catalysts were also very effective in this reaction. Pd/SiO₂ was found more stable and reusable.

Abstract

The Pd-catalyzed decarboxylative cross-coupling reaction between cinnamic acid and aryl iodide derivatives was studied using both homogeneous and heterogeneous Pd-catalysts. It was demonstrated that simple $\text{Pd}(\text{OAc})_2$ can catalyze this reaction with useful to high yields when engaging ferulic acid whatever the nature of the aryl iodide. However, limitations were found when varying the nature of the cinnamic acid derivatives mainly due to low decarboxylation process. This could be overcome in some cases by adding $\text{Cu}(\text{OH})_2/1,10$ -phenantroline as co-catalyst. In the presence of heterogeneous catalysts, the studies showed that both Pd/C and home-made Pd/SiO₂ catalysts afforded high product yields; however,

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