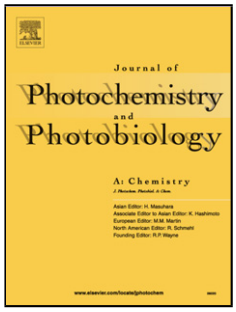

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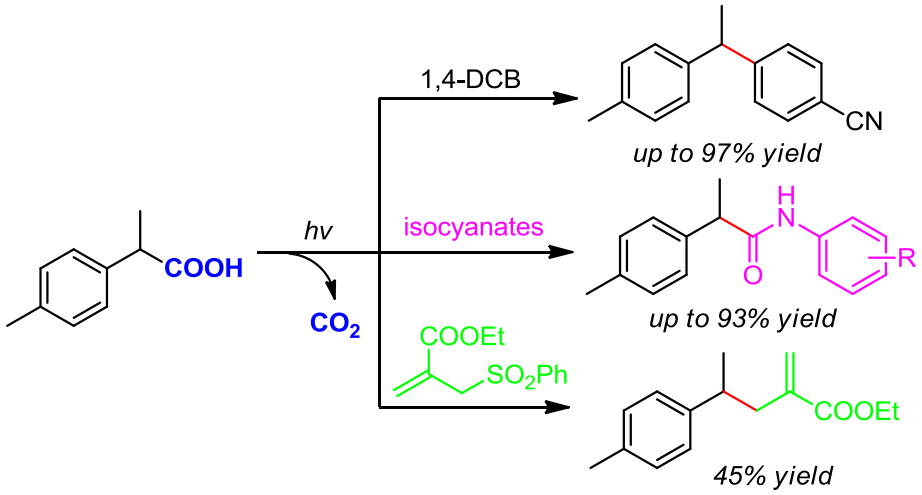
UV Light-Mediated Decarboxylative Cross-Coupling Reaction of Aryl Acetic Acids

Lei Tao, Junlei Wang, Junjie Zeng, Guo-Lin Gao, Chao Yang*, and Wujiong Xia*

[a]*State Key Lab of Urban Water Resource and Environment, Harbin Institute of Technology (Shenzhen), Shenzhen, China 518055. Fax: (+86)-451-86403760*

E-mail: xyyang@hit.edu.cn (C.Y.); xiawj@hit.edu.cn (W.X.)

Graphical abstract



Highlights

1. This protocol was a metal-free, efficient, environmentally friendly decarboxylative cross-coupling method using inexpensive aryl acetic acid and 1,4-dicyanobenzene to obtain diarylmethane derivatives in moderate to good yields under mild conditions.
2. The decarboxylative coupling reaction has also been applied to isocyanates, olefins, and the corresponding products, amides and terminal alkenes were obtained.

Abstract

A photochemical decarboxylative cross-coupling reaction of aryl acetic acids with 1,4-dicyanobenzene (1,4-DCB) was developed. Under UV light irradiation, the inexpensive aryl acetic acids coupled with 1,4-DCB, isocyanates and alkene derivatives through decarboxylation which led to the corresponding diarylmethanes, amides and alkene derivatives were obtained in moderate to good yields under mild conditions.

Key words: UV light; Decarboxylation; Aryl acetic acids; Cross-coupling

1. Introduction

Diarylmethane derivatives are momentous chemical raw materials and intermediates for organic synthesis, and they are also important structural units of pharmaceutically active molecules, and complex natural products (**Fig. 1**) [1–4].