

Decarboxylative Alkylation and Alkynylation of Biomass-Derived Compounds by Metal-Free Visible-Light Photocatalysis

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This work describes a mild, environmentally friendly method to activate natural carboxylic acids for decarboxylative alkylation and alkynylation. After esterification of biomass-derived acids to *N*-(acyloxy)phthalimides, the active esters are cleaved reductively by photocatalysis to give alkyl radicals, which undergo C–C bond formation with electron-deficient alkenes or acetylenic sulfones. These reactions are catalyzed by the cheap, non-toxic organic dye eosin Y and green light. The scope of acids includes amino acids, fatty acids, α -oxy acids and more complex natural compounds which are available from renewable resources (Fig. 1).^[1,2]

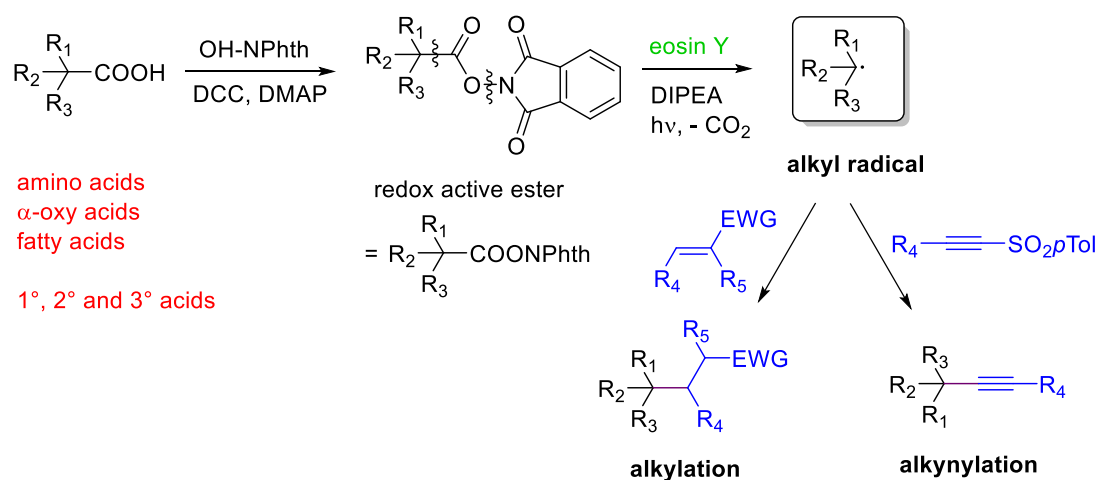


Figure 1. Decarboxylative alkylation and alkynylation of biomass-derived acids via formation of redox active esters and subsequent photocatalytic reduction to alkyl radicals.

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References:

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 [2] J. Schwarz, B. König, *ChemPhotoChem*, **2017**, submitted