

Abstract

In this Thesis, the light-induced release of small organic molecules was investigated.¹ In order to realize this concept, three classes of protecting groups were synthesized and their photolyses were studied.

In the first group, benzoyl acetate was used as the protecting group. The corresponding systems were prepared via Lewis acid catalyzed Michael-addition with excellent yields. Various β -keto esters and volatile components were converted to give a series of photocage compounds. This subsequent hydrolysis leads to the already known 1,5-diketone photocages under much milder conditions. Release of the target molecules by *Norrish* type II photofragmentation during photolysis were observed. However, also the *Norrish* Yang cyclization products were formed.

The second class of photocages were photoactive ammonium salts. These were designed in order to make the already known systems more binding-active to relevant surfaces. Also a dimer was formed by linking two molecules which, after photolysis released two equivalents of the fragrance. Both of the photocages, the salts and the bis-damascone photocage, can be cleaved by *Norrish* type II photolysis.

Photocages which release the cinnamic acid or cinnamate esters are the third group that were investigated. These can be synthesized by Michael-additions and subsequent decarboxylation with good yields. The ester-photocages were prepared through esterification of the carboxylic acid cage. The photolyses shows that these systems are inefficient and require long irradiation times.