

NEW REACTION OF TETRACYCLIC HEXAHYDRO-1,3,5-TRIAZINES
WITH CARBOXYLIC ACID DERIVATIVES —APPROACH TO NEW
SYNTHESIS OF β -LACTAMS

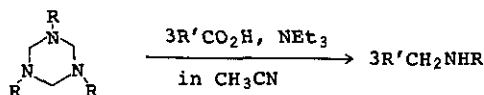
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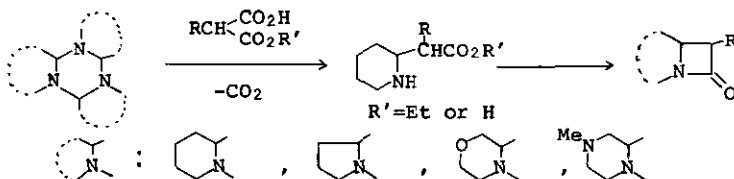
2-2-1 Oshika, Shizuoka-shi, Japan

In a continuing investigation on the reaction of hexahydro-1,3,5-triazines (HTA), we have found that certain carboxylic acids susceptible to decarboxylation react with HTA in the presence of NEt_3 as in the following way.



R' : CCl_3 , NCCH_2 , HO_2CCH_2 , EtO_2CCH_2 , $\text{HO}_2\text{CCH}_2\text{C}(=\text{O})\text{CH}_2$, $\text{EtO}_2\text{CCH}(\text{CH}_3)\text{C}(=\text{O})\text{CH}_2$

Tetracyclic HTA, which are easily prepared by dehydrogenation of alicyclic secondary amines, react in the same way, providing an introduction of decarboxylated residues of carboxylic acids at 2-position of alicyclic amines. By the use of malonic acid derivatives were obtained 2-carboxymethyl- or 2-carbomethoxymethyl-substituted alicyclic amines, which can be converted into bicyclic β -lactams.



Thus, the reaction offers a new, simple route to introduction of various carbon-containing groups at 2-position of alicyclic secondary amines, which is applicable for synthesis of bicyclic β -lactam.