D. UEHARA, S. ADACHI, A. TSUBOUCHI, Y. OKADA, V. V. ZHDANKIN, A. YOSHIMURA, A. SAITO\* (TOKYO UNIVERSITY OF AGRICULTURE AND TECHNOLOGY, JAPAN)

Peptide Coupling Using Recyclable Bicyclic Benziodazolone *Chem. Commun.* **2024**, *60*, 956–959, DOI: 10.1039/D3CC04431A.

## Recyclable Bicyclic Benziodazolone-Mediated Peptide Coupling Reaction

Conditions A: I(III) 
$$\mathbf{A}$$
 (1.2 equiv), Ph<sub>3</sub>P (1.2 equiv) Conditions B: I(III)  $\mathbf{B}$  (1.2 equiv), Ph<sub>3</sub>P (1.4 equiv) PG N CO<sub>2</sub>Me

H<sub>2</sub>N CO<sub>2</sub>Me

H<sub>2</sub>N CO<sub>2</sub>Me

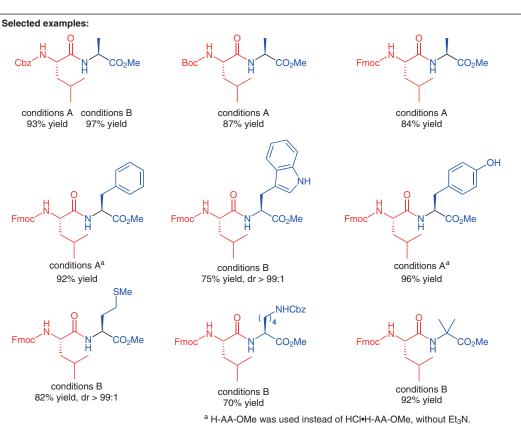
H<sub>2</sub>N CO<sub>2</sub>Me

H<sub>2</sub>N CO<sub>2</sub>Me

H<sub>2</sub>N CO<sub>2</sub>Me

B: R =  $i$ -Pr

B: R = CH<sub>2</sub>CF<sub>3</sub>



**Significance:** The coupling reaction between carboxylic acids and amines using coupling reagents is generally used for the synthesis of peptides. However, this reaction generates a large amount of waste derived from the coupling reagent. The authors have developed a peptide coupling using recyclable bicyclic benziodazolones.

**Comment:** This coupling reaction using bicyclic benziodazolones **A** or **B** produced various dipeptides in high to good yield. After the reaction, **A** and **B** could be recovered as I(I) species. Also, electrochemical oxidation of this I(I) species reproduced **A** and **B**, and these regenerated **A** and **B** promoted a peptide coupling reaction.

**SYNFACTS Contributors:** Hisashi Yamamoto, Kazumasa Kon Synfacts 2024, 20(04), 0429 Published online: 13.03.2024 **DOI:** 10.1055/s-0043-1773185; **Reg-No.:** H03824SF

Category

**Peptide Chemistry** 

Key words

peptide coupling bicyclic benziodazolones recyclable reagent triarylphosphines

