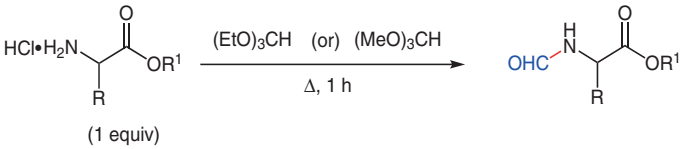
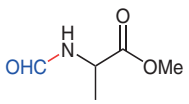
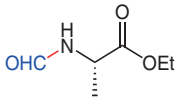
T. CHANCELLOR*, C. MORTON (HOFFMANN-LA ROCHE, NUTLEY, USA)
A Facile Procedure for the Synthesis of *N*-Formyl Amino Acid Esters
Synthesis **1994**, 1010–1023, DOI: 10.1055/s-1994-25628.

Practically Simple Method for the Synthesis of *N*-Formyl Amino Acid Esters

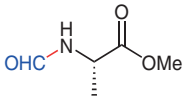




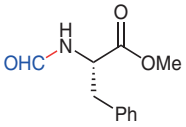
(EtO)$_3$CH, 140 ± 5 °C
74.1% yield



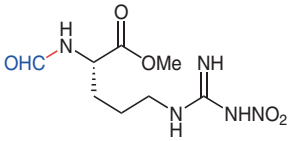
(EtO)$_3$CH, 140 ± 5 °C
72.3% yield, 99 ± 1% ee



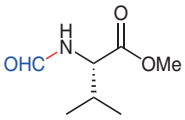
(MeO)$_3$CH, 140 ± 5 °C
84.4% yield, 99 ± 1% ee



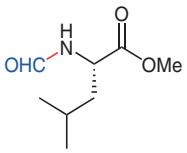
(MeO)$_3$CH, 95 ± 5 °C
66.5% yield, 99 ± 1% ee



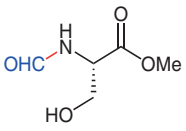
(MeO)$_3$CH, 95 ± 5 °C
107% yield, 99 ± 1% ee[a]



(MeO)$_3$CH, 95 ± 5 °C
94.8% yield, 99 ± 1% ee



(MeO)$_3$CH, 95 ± 5 °C
100% yield, 99 ± 1% ee



(MeO)$_3$CH, 95 ± 5 °C
50% yield

[a] Since this compound is resistant to purification and contains solvent impurities, the yield is >100%.

Significance: Protecting groups play an inherent role in peptide chemistry. In 1994, the authors developed a facile procedure for synthesizing *N*-formyl amino acid esters using commercially available trimethyl orthoformate or triethyl orthoformate.

Comment: A series of *N*-formyl amino acid esters were synthesized in good yields with excellent optical purity. This method is practically simple and proceeds without racemization.

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Category
Peptide Chemistry

Key words
formylation
trimethyl orthoformate
triethyl orthoformate
N-formyl amino acid ester