Dipeptide Synthesis from S-2-Formyl-4-Nitrophenyl Thioesters and Amino Acid Salts

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Proposed mechanism:

Significance: Amide bond formation is very significant in peptide chemistry, and many approaches have been developed to form the peptide bonds. The authors used formyl-substituted S-4-nitrophenyl thioesters to synthesize dipeptides. The reaction could be conducted in the presence of water.

Comment: A broad variety of dipeptides can be synthesized from S-2-formyl-4-nitrophenyl thioesters and amino acid salts. N-Methylmaleimide is used to trap the resulting thiophenol to improve the final yield. The yields of the reactions are good to excellent.