Strecker Degradation of \( \alpha \)-Amino Acids with \( \beta \)-Phenyl-\( \alpha \)-,\( \beta \)-dioxopropionanilide*  

R. Purkayastha** and A. Balenović  
Chemical Laboratory, Faculty of Science, University of Zagreb, Zagreb, Strossmayerov trg 14, Croatia, Yugoslavia  
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A century ago Strecker observed that alloxan reacts with alanine to give carbon dioxide and acetaldehyde.\(^1\) A number of carbonyl compounds have since been found which degrade \( \alpha \)-amino acids to the corresponding aldehyde or ketone with one less carbon atom. A reaction has been carried out by treating the amino acid with the carbonyl compound in aqueous solution or in suspension. This reaction was investigated in details by Schönberg et al.\(^3\). They showed that in this degradation active carbonyl compounds must contain the grouping \(-\text{CO(CH}_2\text{CH)}_\text{n}\text{CO}-\), where \(n = 0\) or an integer, and that at least one carbonyl carbonyl group must be aldehydic or ketonic.

The diabetogenic properties of 2,3,4-triketotetrahydropyridine were earlier investigated and it was found that the diabetogenic effect on rats was similar to that of alloxan.\(^3\) It was suggested also that the grouping \(-\text{COCONH}-\) is responsible for this effect. Later, open-chain compounds, analogues of 2,3,4-triketotetrahydropyridine, were prepared, e.g. \(\beta\)-phenyl-\(\alpha\),\(\beta\)-dioxopropionanilide.\(^4\)

In the present note we report on the Strecker degradation of \(\alpha\)-amino acids with this type of compounds.

**EXPERIMENTAL**

The Strecker degradation was carried out as described by Schönberg et al.\(^2\). The carbonyl compound was dissolved or suspended in boiling water. \(\beta\)-Phenyl-\(\alpha\), \(\beta\)-dioxopropionanilide prepared by K. Balenović and M. Lačan\(^4\) (0.25 g., 0.001 mole), phenylaminoacetic acid (0.3 g., 0.001 mole) and water (50 ml.) were boiled for 30 minutes in a stream of carbon dioxide, provided with a condenser dipping into methanol (25 ml.) containing 2,4-dinitrophenylhydrazine (0.25 g.) and concentrated hydrochloric acid (0.5 ml.). The precipitated benzaldehyde-2,4-dinitrophenylhydrazone, yield 0.25 g. (44\%/o) was crystallized from ethanol and identified by melting point and mixed melting point, and elemental analysis.

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** Predoctorate Research Fellow of the Institute »Ruder Bošković«, Zagreb, on leave of absence from the Department of Applied Chemistry, University of Calcutta, India.
IZVOD

Streckerova degradacija α-aminokiselina sa β-fenil-α,β-dioksopropionanilidom

R. Purkayastha i A. Balenović

Na primjeru fenilaminooctene kiseline i β-fenil-α,β-dioksopropionanilida pokazano je da α,β-dioksopropionanilidi vrše Streckerovu degradaciju α-aminokiselina.