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## Strecker Degradation of $\alpha$ -Amino Acids with $\beta$ -Phenyl- $\alpha,\beta$ -dioxopropionanilide\*

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A century ago Strecker observed that alloxan reacts with alanine to give carbon dioxide and acetaldehyde.<sup>1</sup> 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.*<sup>2</sup> They showed that in this degradation active carbonyl compounds must contain the grouping  $-\text{CO}(\text{CH} : \text{CH})_n\text{CO}-$ , 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.<sup>3</sup> It was suggested also that the grouping  $-\text{COCOCNH}-$  is responsible for this effect. Later, open-chain compounds, analogues of 2,3,4-triketotetrahydropyridine, were prepared, *e. g.*  $\beta$ -phenyl- $\alpha,\beta$ -dioxopropionanilide.<sup>4</sup>

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.*<sup>2</sup> The carbonyl compound was dissolved or suspended in boiling water.  $\beta$ -Phenyl- $\alpha,\beta$ -dioxopropionanilide prepared by K. Balenović and M. Laćan<sup>4</sup> (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%) was crystallized from ethanol and identified by melting point and mixed melting point, and elemental analysis.

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## IZVOD

**Streckerova degradacija  $\alpha$ -aminokiselina sa  $\beta$ -fenil- $\alpha,\beta$ -dioksopropionanilidom**

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Na primjeru fenilaminooctene kiseline i  $\beta$ -fenil- $\alpha,\beta$ -dioksopropionanilida pokazano je da  $\alpha,\beta$ -dioksopropionanilidi vrše Streckerovu degradaciju  $\alpha$ -aminokiselina.

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