ACTION OF CARBOXYPEPTIDASE A ON THE POLYHEDRAL PROTEIN OF *Borrelinavirus bombycis*

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It has been reported previously that the action of carboxypeptidase A (COP A) on the polyhedral protein of *Borrelinavirus bombycis* isolated by the alkaline method splits off following amino acids from the protein in good yield: Tyr, Leu, Phe, Val, Ile, and Ala [1].

By electrophoresis in polyacrylamide gel in the presence of sodium dodecyl sulfate (SDS) it has been shown that the polyhedral protein isolated by the alkaline method gives several bands. In an analysis of the polyhedral protein isolated by the acetic acid method, only one protein band is found. It was assumed that the multiplicity of bands in the analysis of the polyhedral protein isolated by the alkaline method can be explained by the action of proteolytic enzymes which, as is well known, are present in the inclusion bodies of the virus of nuclear polyhedrosis of *Bombyx mori* [2].

To confirm this hypothesis, we performed the proteolysis of the polyhedral protein isolated by the alkali and acid methods with COP A in the presence of 0.056 M SDS and 6 M urea by the methods of Guidotti [3] and Halsey and Neurath [4]. The reaction was performed in 0.2 M $NaHCO_3$, pH 8.5, at 29°C. The enzyme: substrate ratio was 1:100. The amino acids split off were determined on a AAA-881 automatic amino-acid analyzer (Czechoslovakian). The action of COP A for 24 h on the polyhedral protein isolated by the alkali method split off the same amino acids as under the action of COP A without the addition of SDS and urea [1]. The proteolysis of the polyhedral protein isolated by the acetic acid method in the presence of SDS and urea split off only one tyrosine residue (Fig. 1). The action on the same protein of COP A without SDS and urea split off the same amino acids and with the same yield as in the proteolysis of the alkaline protein under similar conditions.

On the basis of the results of the action of COP A in the presence of SDS and urea on the protein isolated by the acetic acid method, it may be considered that the C-terminal amino acid residue of the poly-

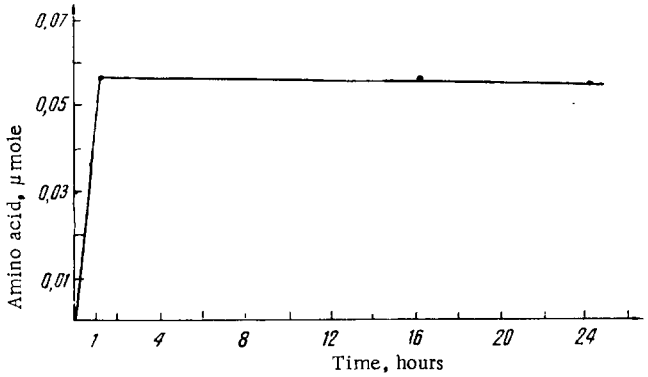

Fig. 1. Splitting off of tyrosine from the polyhedral protein isolated by the acetic acid method with COP A in the presence of SDS and urea.

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hedral protein is tyrosine. The appearance of the following amino acids under the action of COP A, both in the presence of SDS and urea and without them, on the protein isolated by the alkali method can apparently be explained by the action of COP A on the cleavage products of the protein, which is harmony with the results of electrophoresis in polyacrylamide gel. It may be assumed that the protein isolated by the acetic acid method is also split by proteases under the conditions of the action of COP A, which may explain the appearance of other amino acids apart from tyrosine in the action of COP A without SDS and urea.

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