

ENZYMATIC MODIFICATION OF THE L-ASPARAGINASE OF *E. coli*

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We have studied the inactivation of L-asparaginase by the method of enzymatic modification and have established the possibility of its cleavage and degradation without loss of enzymatic activity. For this purpose we used a purified L-asparaginase of *E. coli* B 675 (specific activity ~200 IU/mg of protein) obtained by a known method [1]. The proteolysis of the *E. coli* L-asparaginase was performed for 30 min [2].

Carboxypeptidase A DFP does not inhibit the activity of L-asparaginase, leucine aminopeptidase decreases it by 25%, and α -chymotrypsin has a considerable inhibiting effect (Table 1). Complete inactivation of the enzyme is observed under the action of trypsin. On incubation for 30 minutes, pepsin somewhat increases the L-asparaginase activity. It possibly stabilizes the L-asparaginase molecule or leads to the splitting off of functional groupings located close to the active center and interfering with the binding of the substrate. A more prolonged incubation of L-asparaginase with pepsin leads to the inhibition of the L-asparaginase activity.

TABLE 1. Inhibition of the Activity of
E. coli L-Asparaginase by Enzymes

| Compound | pH | T, °C | L-Aspara- ginase ac- tivity, % |
|------------------------|-----|-------|--------------------------------------|
| Pepsin | 4,6 | 37 | 130 |
| Carboxypeptidase A | 7,6 | 25 | 100 |
| α -Chymotrypsin | 7,6 | 37 | 90 |
| Leucine aminopeptidase | 8,5 | 25 | 75 |
| Chymotrypsinogen A | 7,6 | 37 | 65 |
| Papain | — | 25 | 20 |
| Trypsin | 8,0 | 25 | 0 |

LITERATURE CITED

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2. C. H. Hors, *Methods in Enzymology*, Vol. XI, New York (1967).

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