THE AMINO ACID SEQUENCE OF THE TRYPTIC PEPTIDES OF THE f1 BACTERIOPHAGE COAT PROTEIN.

by

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ABSTRACT

Five major peptides were isolated by paper electrophoresis from a tryptic digestion of purified f1 bacteriophage coat protein. The amino acid composition of the peptides was determined and shown to be:-

T_1	Ala_2, Glu_1, Asp_2, Pro_1, Gly_1, Lys_1.
T_2	Ala_1, Ser_1.
T_3	Phe_i, Thr_1, Ser_1, Lys_1.
T_4	Leu_1, Phe_1, Lys_1.
T_5	Lys_1.

Sequential degradation of the intact f1 coat protein using the Edman technique showed the N-terminal sequence to be:-

Ala - Glu - Gly - Asp - Asp -

T_1:- The sequence of the tryptic peptide T_1 indicated it was derived from the N-terminal of the protein and was assigned the sequence:-

Ala - Glu - Gly - Asp - Asp - (Pro_1, Ala_1) - Lys.

T_2:- After two cycles of the Edman degradation reaction the sequence of T_2 was shown to be:-

Ala - Ser

Digestion of the intact f1 coat protein with carboxypeptidase A indicated T_2 was the C-terminal peptide since carboxypeptidase A showed the C-terminal sequence to be:-

- Lys - Ala - Ser

T_3:- This peptide was shown to have the sequence:-

Phe - Thr - Ser - Lys

T_4:- This peptide was assigned the sequence

Leu - Phe - Lys

T_5:- T_5 was shown to be a free Lys residue.

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ABBREVIATIONS

Ala	Alanine
Asp	Aspartic acid
Dansylchloride	1-dimethylaminonapthalene-5-sulphonyl chloride
DNA	Deoxyribonucleic acid
DNFB	2,4-Dinitro-1-fluorobenzene
DNP-amino acid	Dinitrophenyl-amino acid
DNS-peptide	Dansyl - peptide
DPTU	Diphenylthiourea
Glu	Glutamic acid
Gly	Glycine
Ile	Isoleucine
Leu	Leucine
Lys	Lysine
Met	Methionine
MPTU	Monophenythiourea
Phe	Phenylalanine
PITC	Phenylisothiocyanate
Pro	Proline
PTC-derivative	Phenylthiocarbamyl-derivative
PTH-derivative	3-Phenyl-2-thiohydantoin-derivative
Ser	Serine
Thr	Threonine
Trp	Tryptophan
Tyr	Tyrosine
Val	Valine