

Table 5. COMPARISON OF THE ISOTOPIC TEMPERATURES AND DEPTH HABITATS OBTAINED FROM CORE P6304-8 (10 CM LEVEL) WITH THE TEMPERATURES AND DEPTH HABITATS OBSERVED BY JONES (1967) IN THE EQUATORIAL ATLANTIC

Species	Temperature (°C)		Depth in water column (m)	
	Isotopic P6304-8 (10 cm)	Observed Atlantic	Calculated P6304-8 (10 cm)	Observed Atlantic
<i>Globigerinoides ruber</i>	29.1	14-29	20	0-100
<i>G. trilobus trilobus</i>	27.4	25-29	8-40	0-75
<i>Orbulina universa</i>	25.5	25-27	81	25-75
<i>Pulleniatina obliquiloculata</i>	25.2	25	85	25-50
<i>Hastigerina pelagica</i>	25.0	7-10	88	300-400
<i>Globoquadrina dutertrei</i>	22.2	24-27	121	25-50
<i>Globorotalia truncatulinoides</i>	18.0	14-17	181	100-200
<i>G. crassaformis</i>	—	14-17	—	75-200

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MOLECULAR STRUCTURE

Further X-ray Evidence of Regularly Distributed Lysine in α -Keratin

It has recently been shown that in mohair fibres the fifth order of the 198 Å pseudo repeat (39 Å reflexion) is intensified when the ϵ -amino groups of lysine residues are acylated with 3,4,5-triodobenzoic acid *p*-nitrophenylester¹. Particularly high yields of acylated ϵ -amino groups were obtained when dimethylsulphoxide was used as reaction medium. A sample of mohair which had been treated for 24 h at 40° C in this solvent, however, showed a somewhat diffuse X-ray pattern. We therefore looked for a reaction medium which did not cause structural distortion of the α -keratin and which gave high yields of acylated ϵ -amino groups.

Because dimethylformamide (DMF) is a suitable solvent for coupling reactions in peptide chemistry, mohair was treated with 3,4,5-triodobenzoic acid *p*-nitrophenylester in DMF for 120 h at 50° C. In these conditions, 80 per cent of the ϵ -amino groups were acylated (DNP analysis). The meridional photometer curve of the X-ray pattern of this sample is shown in Fig. 1b. There is a relatively strong intensification of the 39 Å reflexion in comparison with the unstained sample (Fig. 1a).

In addition to the ester which was labelled with iodine we also used one which was labelled with mercury, as mercury has a smaller absorption factor and a higher atomic scattering power than iodine: *p*-(carboxymethylthiomercury)benzoic acid *p*-nitrophenylester was synthesized according to Matyash and Stepanov². When the ϵ -amino groups were acylated with the mercury compound a partial decomposition of the mercury organic compound occurred.

The best method of acylation which we have found consists of treating mohair with *p*-(carboxymethylthiomercury)benzoic acid *p*-nitrophenylester in DMF for 24 h at 60° C. In these conditions only 65 per cent of the ϵ -amino groups are acylated (DNP analysis) but

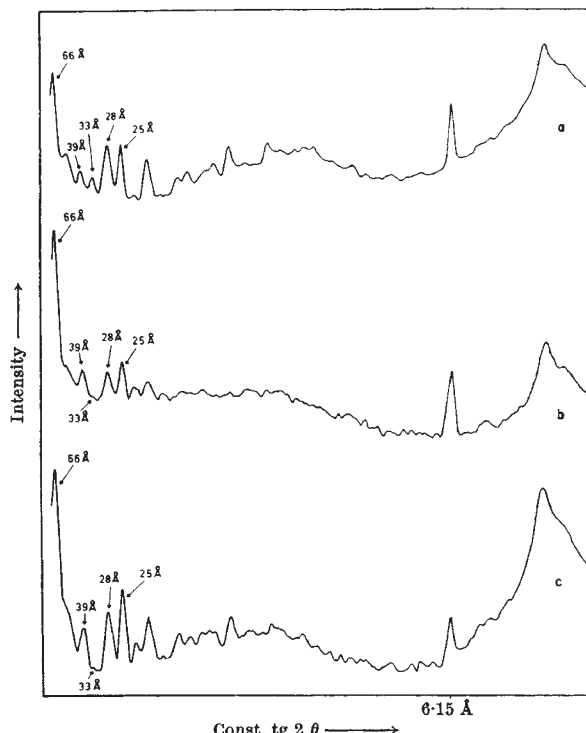


Fig. 1. Meridional photometer curves of the low angle X-ray diffraction patterns taken at room temperature with nickel-filtered $\text{CuK}\alpha$ radiation. a, Unstained mohair CSFH; b, mohair CSFH stained with 3,4,5-triodobenzoic acid *p*-nitrophenylester in DMF for 120 h at 50° C; c, mohair CSFH stained with *p*-(carboxymethylthiomercury)benzoic acid *p*-nitrophenylester in DMF for 24 h at 60° C.

no decomposition is observed. In the X-ray pattern of such a sample (meridional photometer curve in Fig. 1c) there is also an intensification of the 39 Å reflexion, but the representation of this pattern in other reflexions is more comparable with that of the unstained sample. Molybdenum disulphide powder was used as an internal standard (6.15 Å reflexion).

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CHEMISTRY

Novel Facilitation of Peptide Synthesis

THE "solid phase" method of synthesizing peptides¹, in which the carbon-terminal residue is first esterified to a hydroxymethylpolystyrene resin, has been used successfully for the rapid synthesis in high yield of peptides which can be purified after removal from the resin². If such a procedure, which omits the purification of intermediates, is to yield a homogeneous product without