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Über die orientierte Aufwachung von Polyäthylen auf Steinsalz

Versuche mit einem linearen Polyäthylen (Marka, M = 12000),geführt ohne weitere zu den gewählten Aufwachungen, die lineare Polyäthylen wurden aus einer 0,05-prozentigen Lösung in Dekalin auf die Steinsalze (100 mg einer 20-prozentigen Suspensionskolloide aufgebracht. Das Polyäthylen orientierte sich auf [001] von NaCl in Nadeln mit der Nadellängsachse [1 0 0] und [1 1 0].

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Summary

Oriented growth of linear polyethylene on rock-salt is described. The method-shaped crystals of polyethylene are oriented at (1 0 0) of NaCl with the long axis of the needles parallel [1 0 0] and [1 1 0].

On Chondroitin Sulphate and Mucoprotein from Cartilage

It has been proposed that in hyaloidine hyaline cartilage chondroitin sulphate is present in two forms, about one-third would be bound to a protein different from collagen to form a mucoprotein. The remainder being linked to collagen.

The present work was carried out on a product extracted from horse nasal septum cartilage. Approximate solutions of 30% potassium chloride plus 1% potassium carbonate were used in this extraction. After clarification, the extraction solutions were dialysed and added with potassium acetate and alcohol at 0°C. The precipitates so obtained were redisolved and reprecipitated in sodium citrate which finally they were dried with absolute alcohol and ether.

The aim was to get a physico-chemical picture of this product which will be referred to as MC.

The N content of MC (deteriorated to the dry weight at 100°C) was 5.08%. Its amino acid composition, as revealed by paper chromatography, was as follows: aspartic acid, arginine, glycine, glutamic acid, threonine, alanine, leucine (1+1), ornithine, lysine, valine, phenylalanine (1+1), histidine, tyrosine, tryptophane, proline (+).

By paper electrophoresis (pH 2.0-10.0), it was found that MC was formed by two components, one was immodate and stained with light green and metachromatically with tannine blue, the other one migrated towards the anode and only stained metachromatically with tannine blue.

In the analytical ultracentrifugation, MC in phosphate buffer pH 7.0-7.1 exhibited a very diffuse and asymmetrical pattern. The average molecular weight, as determined by sedimentation, Z = 1.28 t 1.16; X = 1.10 t 1.05 A.

All the above results are easily explained if it is assumed that MC contains a certain amount of free polysaccharide besides the mucoprotein of high molecular weight. Owing to the relatively low molecular weight of chondroitin sulphate, the light scattering results must be corrected for the mucoprotein. In this case too, using the

same treatment of the Zimm plot as for different mucopolysaccharides previously studied. It is possible to conclude that a polydispersity system of cells is the best model for the molecular shape of MC in salt solution.

An investigation with the electron microscope of extremely dilute aqueous solutions of MC showed the presence of fibrillar structures (Figure). These fibrils are thought to be formed by side aggregation of smaller units, possibly of mucopolysaccharides and chondroitin sulfate molecules. They seem to confirm in the previously published end-to-end arrangement of polysaccharide and polypeptides in the mucopolysaccharide molecules, and (d) the suggested possibility of linkages between acid groups of chondroitin sulfate or mucopolysaccharide molecules and basic linkages of other mucopolysaccharides when the ionic strength of the medium is very low and consequently the ionization is slight. A more detailed account of this work will be published in due course elsewhere.

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Résumé

Les résultats d'une étude histolinoïque sur le condylo-médiolatérale et la macromolécule du cartilage, ont conduit à des conclusions sur la structure prééctinté du condylo-métaphysectomisé.


The Structures of Amybrosin and Damsin

Two crystalline compounds, named amybrosin and damasin, have recently been isolated from *Anobrusia* (Chironomus, Chironomidae, by B. Smith and J. Smith, respectively). The same authors carried out a thorough study of the oxidation and reduction of the two natural products and the following conclusions were made: at that time, amybrosin and damasin contain the same carbon skeleton and are triketones. The formation of an unidentified azulene on dehydrogenation of reduced amybrosin suggests the presence of a substituted benzene ring in the same carbon skeleton in these two natural substances. Finally the authors supposed a structural relation between amybrosin and heliosin.

Recent work on heliosin has shown that this sesquiterpene lactone is represented by 1. We have now used the information gained from the study of both heliosin (B) and damasin (D) to deduce possible structures for amybrosin and damasin.

The ultraviolet absorption spectrum of amybrosin (240 m, x 114.3) cannot be reconciled with the presence of a cyclopentanone chromophore alone, because such systems are characterized by low extinction. (Dihydroheliosin V, in 440 m, x 743.5 and tr