samples during SAXS measurements with an eye toward better repeatability and ease-of-use.

Keywords: Nanomaterials, SAXS, Nanotechnology

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Crystallization and structure of the human Co-insulin derivative – a new crystal form. Biserka Prugovečki, Adela Jurković, Dubravka Matković-Čalogović. Laboratory of General and Inorganic Chemistry, Department of Chemistry, Faculty of Science, University of Zagreb, Croatia.
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Insulin is synthesized in humans and other mammals within the beta cells of the islets of Langerhans in the pancreas. It is structured as a two polypeptide chains (chain A consists of 21 and chain B of 30 amino acids) linked by two sulfur bridges. Insulin is used medically in Type 1 diabetes mellitus. As a part of our ongoing research on the crystallization and structural studies on human insulin derivatives [1], [2] in the present study the zinc ions in insulin were substituted with other elements. The coordination is similar as in the 2Zn-insulin in the T6 setting) with cell parameters a = b = 45.87 Å, c = 116.84 Å, γ = 120°. There are two cobalt ions in the hexamer, coordinated octahedrally by three histidines and three water molecules. The coordination is similar as in the 2Zn-insulin in the T6 form. However, the packing of the hexamers in the unit cell is quite different than in the Zn-derivative.


Keywords: insulin, cobalt, X-ray

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Studies of XRD, Profile Matching and TEM of Poly(o-methoxyaniline) – POMA in different times of synthesis. Edgar Ap. Sanches*, Graziella Trovati*, Yvonne P. Mascarenhas*, *University of São Paulo (USP), Institute of Physics of São Carlos (IFSC), São Carlos – SP, Brazil. bUniversity of São Paulo (USP), Institute of Chemistry of São Carlos (IQSC), São Carlos – SP, Brazil.
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Some studies have been developed to produce derivatives of Polyaniine (PANI) without compromising their electrical and electrochemical properties. The incorporation of polar functional groups or long and flexible chains in the structure of the polymer is a common technique for preparing soluble polymers in water or organic solvents [1,2]. The insolubility of PANI can be attributed to the rigidity of the main chain, which occurs due to the existence of a system of strongly conjugated π electrons. Electron donor substituents in positions 2 and 5 of the rings in the main chain make it more flexible. As a result, there is an increased solubility and decreased electrical conductivity [2,3]. Structural aspects in polymers are still a mystery and so continue to be an interesting researched topic [4,5]. Understanding of the regular arrangement of polymer materials is essential for the prediction of processing methods and thus relates the material properties.


Keywords: Poly(o-methoxyaniline), DRX, Profile Matching

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Thrombomodulin (TM) is a membrane protein distributed in many different tissues with crucial functions in coagulation and fibrinolysis. Enhancement of blood coagulation function was not supposed to be through blood vessel per se, instead, possibly through pivotal mediations by molecules like thrombomodulin. With such involvement of TM participation, coagulations and immune responses may be bridging in many important aspects. The structures of TM are proposed to be responsible for its functions. The lectin-like domain of TM can be categorized as family containing C-type lectin, which is strongly involved in cell adhesion and inflammations,