

TEM STUDIES OF CRYSTALLINE HYDROXYL AND FLUORO-APATITE IN BONE TISSUES

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We study the presence of apatite on different bone tissues and characterize this material by electron microscopy and additional techniques. First group of tissue was dental tissues, which exhibit a crystalline form of hydroxyl and fluoro-apatite. Electron diffraction and XRD data confirm presence of polycrystalline like material. The morphological characteristics of tissue are investigated by using TEM micrograph and show apatite nanocrystal arranged around osteocyte cell, that are apatite generator in tissue. The dimension of this cell is also investigated. Also the bone tissue is examined. Samples are prepared for TEM by included small piece of material in epoxy resin and cut thin section by means of ultramicrotome equipped with diamond knife. Thickness of ultrathin sections are kept around 50-60nm. The size of sections are keep small, around 500 μm and less, to eliminate the artifact that appear on section due to hardness of material. Structural data was completed by examine the chemical composition by means of EDX technique.

Keywords: TEM, XRD, EDX, apatite, osteocyte