

**CHARACTERIZATION OF BIOMEDICAL MATERIALS
USING LOW ANGLE X-RAY SCATTERING (LAXS) SYSTEM**

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Characterization of biomedical materials by virtue of their atomic and molecular structures is facilitated by the use of Energy Dispersive X-Ray Diffraction (EDXRD) patterns derived from a Low angle X-ray scattering (LAXS) system. Characterisation of biomedical material can serve to identify individual materials within the body or in sorting them outside the body.

Characterization can also be done on materials of body parts such as tissue and bones to identify abnormal changes such as cancer and osteoporosis respectively. The materials that have been examined were aluminium, copper, polyethylene, paraffin wax, polymethylmethacrylate (PMMA), calcium carbonate, water, di-potassium hydrogen phosphate powder and solution, rubber, bone phantom, fresh chicken bone with and without tissue, dried chicken bone and fresh chicken tissue.

The ability of the LAXS system to identify these materials and to distinguish mixtures from each other was clearly evident. The diffraction patterns can also show the degree of order of the investigated materials. This concludes that LAXS have the potential to be a good tool in the characterization of biomedical materials.