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Structural Changes in the Neutron-Irradiated Chondroitin Sulfate

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Chondroitin sulfate (CS) is a linear heteropolysaccharide consisting of repeating disaccharide units of glucuronic acid and galactosamine, which is commonly sulfated at C-4 and/or C-6 of galactosamine. Chondroitin sulfate is a molecule that is found naturally in the body. chondroitin sulfate (CS) is a glycosaminoglycan (GAG) covalently linked to proteins forming proteoglycans (PGs). CS exists in our body in cartilage and many types of tissues such as bone, ligament, cornea, brain, blood vessel, and skin.

This work will cover biophysical and microstructural effects of neutron radiation on CS. We were studied the structural parameters of CS by Small-Angle Neutron Scattering. CS was irradiated at Orphee Reactor with a neutron flux of 3×10^{14} neutron/cm².

For the average energy of 5 meV of neutrons, the total dose delivered to CS from neutrons was calculated. The results show that the dose was of 0.059 mGy and that the addition of divalent cations induces the formation of a hydrogel scaffold.

Biography:

Chivuta-Ramona Badita is assistant researcher of IFIN-HH Magurele and he is working in the research projects. His activities implies research concerning the study of biological samples as well as environmentl and personnel dosimetry using passive dosimeters OSL type. He is working for establishment and elaboration documentation for Quality Management System of dosimetry laboratory from ELI-NP facility.