

## **EPR investigations of dosimetric properties of alanine irradiated by therapeutic electron beams**

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Radiotherapy treatment delivers low dose radiation beams to the patient to destroy the tumor with energy deposition in the matter. Thus it requires effective dosimetry for dose assessment in the clinical environment and the patient body. Among many dosimetric systems, EPR method is interesting with substantial advantages such as its reliability, accuracy and its non-destructive asset. In this proposed study, alanine irradiated by 6 MeV and 18 MeV electron beams delivered by a linear accelerator CLINAC 2300DHX was analyzed by EPR method to determine its dosimetric potentialities and compare the effect of energy. Samples were irradiated at doses ranging from 0 to 20Gy. EPR measurements performed with optimized parameters (microwave power = 1 mW, amplitude modulation = 0.5 mT) show a good radiation sensitivity of this material: threshold measurable dose is 1 Gy for both the energies of irradiation. Also the concentration of free radicals induced is proportional to the absorbed dose. Indeed, alanine is slightly more sensitive to 18 MeV beam than to 6 MeV beam. Furthermore, the free radicals created after irradiation are stable during 12 months of storage which allows multiple alanine dosimeter reading. Finally, a small quantity of alanine is efficient for pellets elaboration.

### **Biography**

Abdoul Karim Mamadou Saidou has completed his Master's degree in Biomedical Engineering from University of Hassan II Casablanca in Morocco and is currently enrolled in a PhD position in the same university. He is a Member of Spectroscopy and Dosimetry team, and his field of research is Medical/Radiation Physics and Dosimetry for Radiotherapy. He has attended many scientific meetings with publications in conference proceedings and journals.

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