**Dosimetry**

Dosimetry of the 6 MV photon beams generated by Elekta Precise linac was carried out using Dual ionization chambers (detector and reference) of volume 0.125 cc connected to the dual channel PTW electrometer (TANDEM). The chambers are used with a three-dimensional MP3-S water phantom connected to MP3-S therapy beam analyzer system. The measurements were carried from zero to 35 cm depth in 1 mm increments then the collected data was stored and analyzed using the computer program MEPHYSTO version (7.3). Dosimetry determined the beam configuration and symmetry as well as the percentage depth doses (PDD) for each field size.

In this study, the field size used was 35 X 35 cm. For the field size used, the percentage depth dose was calculated using the device's operating program in order to be able to give the desired dose to the target that was assumed to be 1 cm deep under the skin. For irradiation, in each irradiated group, one rat was put at the central axis and four rats were put off axis (two at each side) but adjacent to the central one with the maximum off axis distance at each side not exceeding 15 cm. Thus, all the rats were in the plateau region of the field where the dose distribution is uniform and the penumbra region is avoided. For the 6 MV linear accelerator used, there was a build up region of 1.5 cm which was dealt with by putting 1.5 cm thick perspex sheet in direct contact above the rats during all irradiations.

Before irradiation, the animals were anesthetized by intraperitoneal injection of Ketamine and Xylazine cocktail (75 mg/kg and 5 mg/Kg, respectively). In average, the animals were under anesthesia for 60 min during which the animals were kept at room temperature (20-25 oC). During irradiation, the animals were restrained in the sternal recumbent position on the irradiation table and the radiation field was adjusted so that the animals are centered in the radiation field.