

Purpose: To construct and test a small ^{192}Ir collimator for HDR brachytherapy dosimetry purposes. **Material and methods:** The device is made up of a cerrobend cube to produce a collimated beam when a catheter from an HDR ^{192}Ir source is inserted in the center of the cube. The cube is mounted in a calibration bench which allows the positioning of a $15 \times 15 \times 15 \text{ cm}^3$ water and/or solid water phantoms in the central axis of the radiation beam at a fixed distance. The field size at the fixed calibration distance of 10 cm is 5 cm diameter. The radiation beam profile at this distance was measured with a gafchromic film, ionization chamber and calculated with the PENELOPE Monte Carlo code. Such code was also used to determine the spectra of radiation in air and at 0.5-cm depth of both phantoms. Simulations were performed with 10^9 histories. **Results:** Calculated data have shown that both profiles (x and the z-axis which is along the source) at a distance 10 cm away from the source is flat within 0.7%. This beam flatness was confirmed with the measurements done with the ionization chamber and with the gaphchromic film as well. Within the statistical uncertainty of the calculations (0.4%), there was no observable change in the mean energy of the input photon spectra and at 0.5-cm depth in water phantom. **Conclusion:** The miniature irradiator can be used for QA of HDR brachytherapy equipments. If the system is provided with a standard calibrated ionization chamber and appropriate phantoms, it can be used to calibrate HDR sources, TLDs films and to determine the Fricke chemical yield.