

THE POTENTIAL USE OF ELECTRON BEAM IRRADIATION TO PRESERVE MICRO-BIOLOGICALLY INFECTED EGYPTIAN PAPYRUS

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The work was aimed to use electron beam for preserving some cellulosic natural heritage made from papyri. A comparative study on the effect of gamma, and e-beam, on papyri properties was investigated. Irradiation conditions as total dose, dose rate, and surrounding environment conditions during irradiation (air or oxygen-free) were taken in consideration. The physical and chemical analysis, colour change, mechanical properties, ageing studies and radical stability of irradiated samples were evaluated. Limited post oxidation and degradation effects on papyri samples exposed to EB irradiation were recorded. Mechanical properties of 6 months stored samples showed that the electron beam irradiation has limited degraded effect on papyrus. It could be concluded that the electron beam irradiation can be applied for decontamination of microbiologically infected and damaged papyrus.