

Dedication

To

*My family; father, mother, brothers and
sisters*

All my teachers who guided me

My college

My friends

All children

Acknowledgment

.First I am thankful to ALLAH

I take immense pleasure in thanking all those people who had given me help and support in completing this study especially to my supervisor,
Dr. Mohamed Ahmed Ali Omer

I would like to take this opportunity to thanks to Alneelen University and radiation and isotopes center Khartoum for his time for help me
.throughout this project

ملخص البحث

عامل الاشعاع في المستشفيات المختلفة يتعرض لمستويات مختلفة من الاشعة عند جهاز المعجل الخطي , يجب استخدام اجهزة المراقبة الفردية .

في هذه الدراسة قمنا بتحضير فلم بإذابة فينيل الكحول المتعدد الجزيئات في 500ml ماء مقطر تحت درجة حرارة 60-70 C لمدة ثلاث ساعات. بعد ذلك أضفنا للمحلول تركيز من نترات الفضة (0.01, 0.03 and) كل علي حدا في الغرفة المظلمة لمدة ثلاثة ايام.

بعد تحضير الفلم قمنا بتعريضه ل طاقة 6Mev شعاع الكترون من جهاز المعجل الخطي باستخدام مخروط applicator 10x10cm لجرعات مختلفة (0, 2,4,6,8, 10 Gy and).

بعد ذلك قمنا باستخدام جهاز Uv visible spectrophotometer لقياس الطول الموجي للافلام و optical densitometer لقياس الكثافة الضوئية للافلام.

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اللون الابيض للفلم يتغير الي الاصفر, الذهبي و الاسود بعد جرعات الاشعة (0.01, 0.02 and 0.03) تغير اللون يكشف مراحل الاختزال المختلفة لايونات الفضة بالاشعة.

ABSTRACT

Radiation worker in different hospitals exposure to different levels from radiations at a linear accelerator, so it must be use personnel monitoring .devices like, thermoluminescent dosimeters (TLD) and film badge

This study we prepared film by dissolving PVA powder (5wt%) in 500 ml distilled water and placed in magnetic stirrer under controlled water bath temperature at 60-70 C and continuous stirring for 3 h. after that we take pure PVA and concentration of (0.01wt) silver nitrate we added to 50 ml PVA, (0.02) silver nitrate we added to 50 ml PVA, (0.03) silver nitrate we .added to 50 ml PVA and stirred for 2 hr in darkroom for three day

After prepare the film we take it and exposure to 6Mev electron beam from the linear accelerator machine with applicator cone 10x10 cm to different doses (0, 2,4,6,8 and 10 Gy). After that we use UV-visible light spectrophotometer to measure the wave length of the films and optical densitometer to measure optical density of the films. So we found when the dose level increase the film absorption increase and when the dose .level decrease the film absorption decrease

The white color of the film has been changed to yellow, golden and black following the radiation steps up to 10 Gy. The color change of the film .reveals different reduction stages of silver ions by irradiation

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