بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــســـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

ACTIVITY OF HYDROLASE AND OXIDOREDUCTASE ENZYMES IN SOME FOODS TREATED WITH γ RAYS

By

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B. Sc. (Agriculture Engineering), Aleppo University, Syria, (1990)
M. Sc. (Food Science and Technology), Ain Shams University, (1996)

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of
the requirements for the degree
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Approval Sheet

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Date of examination: 29 / 6 / 2000

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ABSTRACT

Mohamed Ben Mahmoud Massri. Activity of hydrolase and oxidoreductase enzymes in some foods treated with γ-rays. Unpublished Doctor of philosophy Dissertation. Ain Shams University, Faculty of Agriculture, Food Science Department, 2000.

It was aimed throught the scope of the study to look forward about the effect of irradiation on the velocity of oxidoreductase and hydrolase enzymes in some food stuffs. The investigated enzymes namely polyphenolase and peroxidase representing the former group, while the pectin methyl esterase was chosen to represent the latter one. Food stuffs that being under test within the research at hand were: mango fruits, potato tubers, onion, garlic bulbs and pistachio nuts. These aforementioned samples were treated with specific irradiation doses and stored for different periods according to the following model:

** Mango fruits; were treated with 500, 1000, 1500, 2000, 2500 and 5000 Gy. Storage was performed for three weeks at 20 ± 2°C.

** Potato tubers, onion, and garlic samples; were irradiated with 160, 200, 250, 300, 1000 and 5000 Gy. Storage was achieved at 20 ± 2°C.for the following corresponding periods 20 weeks, 6 and 8 months.

** Pistachio nuts were treated with 250, 500 and 2000 Gy and stored for 6 months under similar storage condition.

The velocity of the three enzymes; i.e. polyphenoloxidase, peroxidase and pectin methyl esterase were measured in each of the studied food stuffs within a different substrate and enzyme concentrations. Kinetic aspects of the same enzyme in terms of K_m, V_{max}, slope of activity, angle of activity, pseudo value and catalytic affinity were considered for individual samples withdrawn during the aforementioned storage periods. Moreover, fatty and

amino acids identification as well as electrophoretic pattern were given for pistachio nuts and potato tubers.

A control samples was taken into consideration for each irradiation treatment and statistical in terms of " Duncan" multiple range tests as well as regression analyses (both the simple and multiple one) were used to estimate the best fit dose that highly reduce the activity of the responded enzymes.

Key words: γ-rays, Polyphenoloxidase (PPO), Peroxidsae (POD), Pectin methylesterdsae (PME), K_m, V_{max}, Slope, Degree of affinity, Catalytic efficiency, Angel of activity, Mango fruits, Potato tubers, Onion bulbs, Garlic bulbs, Pistachio nuts, and Electrophoresis.

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