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بالرسالة صفحات
لم ترد بالأصل

Biochemical Studies on Some Egyptian Food Constituents Treated By Irradiation

BY

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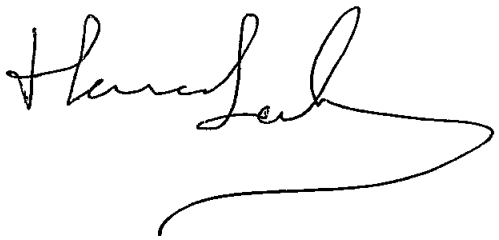
ABSTRACT

In this investigation , synthetic dyes which are used in food industry (tartrazine / Brilliant Blue and Sunset yellow) either singly or as a mixture of the natural colour (mallow leaves and tomato wastes) with the synthetic dyes at ratio (1 : 1)) were exposed to gamma rays at different doses (0 , 10 and 15 KGy) to produce healthy product . Nutrition experiments were conducted to reveal the effect of natural, and synthetic colours, and their mixtures(1 : 1) which added to macaroni product on liver and kidney functions and rat organs weight. Also , microscopical examination was performed on liver kidney and spleen tissues of rats fed on unirradiated and irradiated food colourants .The result of the present work can be summarized as follows: Treated mallow leaves and tomato wastes with gamma radiation at level dose (10 and 15 k.Gy) lead to slight decrease in chemical composition. Meanwhile, no significant effects were found in dry unirradiated or irradiated samples during storage of mallow leaves (in bags) after six months . No significant effects on chemical composition of the mixtures of tomato wastes and dry leaves mallow (at zero and end of storage) with synthetic ones in the ratio (1 : 1) treated with gamma irradiation at different level doses of (10 and 15 K . Gy) relative to control . The result showed that, the macaroni supplemented with dry tomato wastes had slightly increase in total protein relative to control , while total lipid and ash showed the high values in macaroni supplemented with dry mallow leaves either alone or in mixture . Also, the highest value of crude fiber were recorded for macaroni supplemented with dry tomato wastes and their mixtures with synthetic colours. No significant effects between treatments was observed. Dry leaves mallow showed that, the highest total bacteria count and spore form group were at zero time of storage. also,Dry tomato wastes showed highest content of mold , yeast and coliform group.The results showed that all treatments which exposed to gamma radiation at

dose of 15 k.Gy had inhibition in all cells (Total bacterial counts , coliform group , mold , yeast and spores form group). All irradiated treatments at zero time of storage observed no significant effects on total chlorophyll . The results showed an increase in carotenoids content of tomatoes wastes and their mixtures with synthetic colour of either unirradiated or irradiated treatments . Results showed a high level of increase in chlorophyll B than chlorophyll A for the mixtures of natural and synthetic colours compared to control . Results showed that, storage condition affect on all treatments (unirradiation or irradiated) natural or mixed (1:1) ratio with synthetic colour . The rate of gain in body weight and liver kidney and spleen weight of natural and the mixture with synthetic food colourants fed rats was higher than that of control, but synthetic colourants was lower than control, but there was decrease in case of synthetic colour fed . Serum total protein, serum albumin, alkaline phosphates activity, Blood glucose, activities of (AST) and (ALT) , serum creatnine, serum hemoglobin and hematocrate were increased under the effects of both kinds of unirradiated and irradiated colourants (natural ones, and their mixtures with synthetic). Natural and synthetic food colourants significantly lowered the total lipids and total cholesterol. Histopathological Examination, results appeared that, rats feed on synthetic colourants diets alone or / and radiation caused some changes on liver kidney and spleen tissues, while the protective use of natural colours in dose 1 : 1 ratio can ameliorate some the latter effects .



CONTENTS

Abbreviations

A / G ratio	Albumin / globulin.
ALP	Alkaline phosphatase.
ALT	Alanine aminotransferase
AST	Aspartate aminotransferase.
g	gram
Iu	International unit
k. G y	Kilo gray = 100 kilo rad
k.g	Kilo gram
L	Litre
M.M	Unirradiated mixture (leaves mallow flour and tartrazine/ brilliant blue 1:1)
M.T	Unirradiated mixture(tomato waste flour and sunset yellow 1:1).
N.M	Unirradiated leaves mallow flour
N.T	Unirradiated tomato weaste flour
Semolina	Hard wheat flour
Sy.G	Unirradiated synthetic colour(tartrazing/ brilliant blue 1:1). (green colour).
Sy.Y	Unirradiated synthetic colour(sunset yellow). (red colour).

INTRODUCTION