Protective Influence of Nigella Sativa Seeds and Honeybee on Chronic Renal Failure in Albino Rats

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ABSTRACT

The present work aims to study the beneficial effect of dietary supplementation with Nigella Sativa (N.S.) under various concentrations (2% & 4%) without and with 5% honeybee to give more protection against chronic renal failure (CRF) disease. Thirty-six male albino rats were used in this experiment. These rats were put on ideal diet for two weeks before the performance of experiment. At the beginning, these rats were divided into four main groups, and fed on diets for four weeks as follows: The first group (6 rats) fed on basal diet as a negative control. The second group (6 rats) fed on basal diet containing 2% arginine to induce CRF as a positive control. The third group (12 rats) divided into two subgroups: (A) (6 rats) fed on basal diet containing 2% arginine and 2% N.S. seed powder. (B) (6 rats) fed on basal diet containing 2% arginine and 4% N.S. seed powder. The last group (12 rats) was divided also into two subgroups: (C) (6 rats) fed on basal diet containing 2% arginine and 2% N.S. seed powder+5% honeybee. (D) (6 rats) fed on basal diet containing 2% arginine and 4% N.S. seed powder+5% honeybee. At the end of the experimental period rats were fasted over night and sacrificed, blood samples were collected from the aorta then separate serum to determine each of kidney and liver function of rats suffering from CRF, including serum uric acid, urea nitrogen, creatinin, serum sodium & potassium as well as Asparate Amino Transferase (AST) & Alanin Amino Transferase (ALT). Beside nutritional parameters were recorded including body weight gain, food consumption and feed efficiency ratio. Also, The kidney was removed surgically for histopathological observation staine by Hematoxylin and Eosin used to demonstrate histological architecture of kidney.

From the obtained results we concluded that group of rats fed on diets with 2% arginine were considered as a major risk factor for CRF disease.
Our results could be summarized that N.S. at 2% & 4% with 5% honeybee were also considered the best for improving the activities of (AST & ALT), and caused a reduction of uric acid serum, urea, creatinine and potassium than that of positive control group. In fact, feeding with N.S. and honeybee reduced the adverse effect of CRF on kidney, also improved the body weight gain and food intake. Histopathological observation proved that the last group diet is considered as a negative control group.

Our results indicated that the Kaiser bread supplemented at 2% & 4% N.S. with 5% honeybee improved its macro and micronutrients than that of the corresponding control sample. Sensory characteristics can be affected by the efficiency of flavour agents in dough. N.S. with honeybee were acceptable to most members regarding to taste and odour, on the opposite direction, there was a significant decrease in texture, volume, colour (inside & top layers) and general appearance when compared to control bread.

Improving Stability of Cotton Seed Oil Using Lycopene Compound

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ABSTRACT

Tomato is known as a powerhouse of nutrition. The aim of this study was to investigate the chemical variation properties of ripeness stage between two cultivars of tomatoes (Beuto 86 and Kasel Rock) grown under greenhouse or on open conditions. Nutritional parameters included moisture, ash, lipids, protein, fiber, total sugars (reducing & non-reducing), acidity, vitamins such as (C, B$_1$, B$_2$, B$_6$, & A), minerals (Ca, Fe, Zn, Na, P, I and K), amino acids, β-carotene, lycopene and total
phenolics were analyzed. Also, statistical techniques of multivariate analysis were applied in order to differentiate between cultivars of tomatoes.

Lycopene as natural antioxidant pigments extracted from tomatoes and added to the cotton seed oil were used to improve the stability of this oil. In addition, BHT as one of the synthetic antioxidant was used in various concentrations for comparison.

The concentrations of various compounds of nutrients were significantly influenced by the tomato variety and the growing conditions. The most abundant components were found in Kasel Rock grown in open condition. Lycopene compound and BHT at level 250 ppm effectively inhibited the increase in peroxide value for a period of 32 hours heating.

تحسين ثبات زيت بذرة القطن بواسطة مركب الليكوبين
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المتخصص العربي

عرفت الطماطم الآن بأنها هي القوة الغذائية، لذا فالعديد من الأول من دراسة هذا البحث هو إجراء مقارنته للمركبات الكيميائية للطماطم التي نمت في بيئتين مختلفتين خارج ودخل الصوب البلاستيكيه.

اختبر نوعان من الطماطم الطازجة بعد أتمام عملية النضج، وهما (بوتو 86 و الكاسل روك) وتمت التحاليل كل من القياسات الكيميائية والأحصائية للعناصر الداخلة، الرطوبة، الربكاج، الدهون، البروتين، السكريات، المحتوى النباتي، الحمضية، الفيتامينات (ب، د، و و، أ)، الأحماض المعدنية (كالسيوم، الحديد، نيكوتين، فوسفور، أيودين، فيتامينات البوتاسيوم، الأحماض الأمينية، بيتا كاروتين، ليوبينين والفينولات.

القرض الثاني هو استخلاص الليكوبين (مضاد الأكسدة الطبيعي) من الطماطم واسفته إلى زيت بذرة القطن وذلك بغرض تحسين درجة ثبات الزيت. ومقارنتها مع البوتاسيوم هيدروكسي تولين (BHT) ملذ الأكسدة الصناعي من خلال تركيز مختفه.

أثبتت النتائج أن هناك تفاوت ملحوظ في التحاليل الغذائية والكيميائية، أي أنه ليس للبوبين فقط (سواء المفتوحة أو المغلقة تحت الصوب) التي تنمو في ثمار الطماطم تأثيرات واضحة على القيم الغذائية، بل أيضاً نوعية ثمار الطماطم تأثير على القيم الغذائية.

كما أثبتت النتائج أن تركيز العناصر الغذائية كان أكثر وضوحًا في ثمار الطماطم من نوع الكاسيل روك مقارنة بالصنف الآخر، هذا إلى جانب تركيز العناصر الغذائية في الثمار التي تمت بالفعل في بيئة مفتوحة مقارنة بالصوب. كما أنه مركب الليكوبين والبيوتيل هيدروكسي تولين عند مستوى 250 ppm تأثير واضح لمنع زيادة القيم البيروكسيدية للزيت وذلك من خلال فترة تسخين تصل إلى 32 ساعة.
STUDIES ON SOME PHENOLIC AND FLAVONOID COMPOUNDS OF RED SORGHOUM BRAN AND THEIR ANTIBACTERIAL ACTIVITY

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ABSTRACT

Flavonoid and phenolic compounds of red sorghum bran were investigated through ethanolic 70% extraction and subsequently extracted by diethyl ether and ethyl acetate. The diethyl ether extract had contained three aglycons, i.e identified kaempferol, quercetin and apigenin. The ethyl acetate extract proved to contain luteolin, astragtein (Kaempferol-3-glucoside), rhoifolin (Apigenin-7-rutinoside), gallic acid and ellagic acid. The residual material after solvent fractionation contained vicenin II (Apigenin-6-8-di-C-glucoside). All isolated and purified compounds were identified using both physical and chemical methods and were further confirmed by the spectral measurements (U.V. Spectrum and H-NMR spectra). The antibacterial effects of the compounds and extracts were studied by using the agar diffusion technique on four gram positive bacteria namely Staphylococcus oureus, Sarcina lutea, Bacillus pumilus and Bacillus subtilis and two gram negative bacteria Escherichia coli and Broodetella brochiseptica.

Key Words: Red sorghum - Bran – Antioxidants – Flavonoid - Phenolic compounds - Antibacterial effects.

PRODUCTION OF HEALTHFUL BREAD GLUTEN-FREE FOR CELIAC PATIENTS FORTIFIED BY GARLIC AND PSYLLIUM AS ALTERNATIVE GLUTEN

BY

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ABSTRACT

Celiac disease is considered a worldwide health problem in all the areas of the world where there is a great consumption of wheat. The gluten-free products will represents a real challenge both for patients and for physicians, mainly because gluten-free products are not commercially available, it considered of low quality and poor nutrition value. The present work was conducted to evaluate new formulas gluten-free bread that was obtained using maize, rice and garlic as potential healthy ingredients. The garlic was added to formulas at different concentrations levels 10, 15 and 20% to improve the nutrition value of gluten-free breads.
and the pyyllium was added separately at level 3 and 6% to the formulas as alternative gluten. Also, in the present work Kaiser bread formulas were evaluated chemically, nutritionally and organoleptically properties, compared with two control samples made from pyyllium at two various ratios without any supplementation.

The results showed that the garlic had contained the highest total fat, ash, crude fiber, vitamins and minerals content compared with maize and rice flour. Also, maize contained the highest protein and rice contained the highest in total carbohydrate. Moreover, the results indicated that the chemical composition of Kaiser bread made from 20% garlic had contained the highest constitutions followed by formula 15% garlic which using 3 and 6% psyllium.

The sensory evaluation of Kaiser bread showed that the highest score in formula made from 10% garlic with 6% pyyllium followed by 10% garlic with 3% pyyllium. The formulas prepared 15% garlic with 3 and 6% pyyllium were very closely similar to the Kaiser bread made from 10% garlic in all sensory evaluation. It may be concluded and recommended that the Kaiser bread prepared from 10 and 15% garlic with pyyllium at 3 and 6% levels led to an acceptable quality and high nutrition value for manufacturing of bakery products for celiac patients.

**Key words:** Celiac disease - Gluten-free bread – Garlic - Nutritive values - Organoleptically evaluation.

FORTIFICATION OF PAN BREAD GLUTEN- FREE WITH NIGELLA SATIVA AND SESAME FOR CELIAC PATIENTS

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ABSTRACT

In the present study, Nigella sativa (N.S.) and sesame seeds were studied as potential healthy ingredients for improving the nutritional quality of gluten-free pan bread (GFPB). The present work was conducted to evaluate new pan bread gluten-free that was made from maize and rice fortified with N.S. or sesame at different levels namely 10%, 15% and 20% using 3 and 6% psyllium as alternative for gluten to improve nutritive value, taste, odor, color and texture. In the present work twelve different blends of pan bread were evaluated chemically and organoleptically, compared with two control samples made from psyllium at two different ratios (3% and 6%) without any supplementation.

The results showed that fortification of the GFPB with 15% and 20% of sesame or nigella sativa were the best treatments to improving its...
macro and micronutrients content and led to an acceptable quality and high nutritional value compared with those made without replacements.

Sensory characteristics can be affected by the efficiency of flavour ingredients in dough and its concentrations. The sensory evaluation of GFPB showed that the highest score was in formula made from 10% and 15% Nigella Sativa with 6% psyllium. Also, the formula prepared at 20% sesame with 3% and 6% psyllium showed the highest score in general appearance compared to the other types of GFPBs. It may be recommended that the sesame and nigella sativa were acceptable to most members regarding taste, odor, texture, color and general appearance compared to control GFPB with psyllium at 3% and 6%, respectively.

**Tدعيم خبز القوالب خالى الجلوتين بحبة البركة والسمسم لمرضى حساسية الجلوتين**

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في هذا البحث تم دراسة المكونات الكيميائية والصحية المختلفة لبذور حبة البركة والسمسم لتحسين جودة خبز القوالب الخالية الجلوتين من الناحية الغذائية. وقد أجريت هذه الدراسة لتقديم خبز القوالب الخالي الجلوتين الذي تم تصنيعها من الأرز والذرة الصفراء وتدعيمها بحبة البركة أو السمسم على مستويات 10, 15, 20% مع السيليم بنسبة 3% و 6% كبدائل للجلوتين وذلك لتحسين القيمة الغذائية والطعم والرائحة واللون والمسمى. تم تقسيم 12 خلأ مختلفة من خبز القوالب الخالي الجلوتين من الناحية الكيميائية والتقييم الحسي ومقارنته بالعينة القياسية المصنعة من الأرز والذرة الصفراء مع 3% من السيليم.

أظهرت النتائج أن تدعيم خبز القوالب الخالي الجلوتين مع 15, 20% من السمسم أو حبة البركة كانت مقبولة من الناحية الغذائية ولها قيمة غذائية عالية مقارنة بالعينات القياسية. كما أوضح التقييم الحسي أن أفضل المستويات كانت من خلال إضافة حبة البركة بنسبة 10% و 15% مع 6% من السيليم بينما تدعيم السمسم بنسبة 20% مع 3% من السيليم أعطى أفضل النتائج. أيضاً مع 6% من السيليم أعطى نتائج ملائمة مقارنة بالعينات القياسية المصنعة بنسبة 3% و 6% من السيليم. من النتائج المحصل عليها يمكننا أن نوصي بتدعيم خبز القوالب الخالي الجلوتين بحبة البركة والسمسم لكونه مقبولًا من حيث الطعام والرائحة والمظهر العام مقارنة بالعينة القياسية.

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