CHEMICAL AND BIOACTIVE CONSTITUANTS OF MIXED VEGETABLE SOUPS.

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Abstract

Quick vegetable soups technologies at different ratio of particular food sources were prepared. The nutritive value of these 5 product formulas have been assessed based on their proximate, minerals, vitamins, polyphenols and flavonoides final contents. Data obtained showed that all formulas contain a high ratio of minerals, vitamins, polyphenols and flavonoids due to the optimal selected food ingredient used no matter their ratios. The food sources of these formulas were green and red cabbage, onion, oyster mushrooms, carrots, tomato, pumpkin and Taro.

Sensory evaluation showed no significant differences between all formulas and high score for taste, color, flavor, odor and texture. The results mains these formula had acceptable and good taste. We recommended using diet containing rich vegetables which contain different vitamins, high antioxidants and minerals to protect body from diseases.

Introduction

Epidemiological studies suggest that consumption of a diet high in fruits and vegetables is associated with a reduced risk of chronic disease .Unfortunately, there is not yet enough evidence to support the concept that phytochemicals are responsible for these effects. Fruits and vegetables are important sources of a variety of beneficial agents including vitamins, minerals, fiber, and phytochemicals **Halliwell, (2007).**

Mushrooms have a great nutritional value since they are quite rich in protein, with an important content of essential amino acids and fiber, and poor in fat. Edible mushrooms also provide a nutritionally significant content of vitamins (B1, B2, B12, C, D and E) (**Heleno et al., 2010; Mattila et al., 2001**). Edible mushrooms could be a source of many different nutraceuticals such as unsaturated fatty acids, phenolic compounds, tocopherols, ascorbic acid and carotenoids. Thus, they might be used directly in diet and promote health, taking advantage of the additive and synergistic effects of all the bioactive compounds present (**Barros et**

al., 2007; Barros et al., 2008a; Barros et al., 2008b; Ferreira et al., 2009; Pereira et al., 2012; Vaz et al., 2010).

The people cannot supply an adequate intake of essential food compounds such as proteins containing essential amino acids, vitamins, minerals and essential fatty acids. The developing countries need to provide essential food components for nutrition. Edible mushrooms have these essential compounds and functional substances for human health. Mushrooms also contain bioactive components including β-glucans and chitin. The amount of edible mushrooms produced in modern plants for public nutrition that need balanced foods has increased **ÇAĞLARIRMAK (2011)**

Among common fruits and vegetables, carrots are high in fibers, carotenoids, vitamins C and E, and phenolics such as p-coumaric, chlorogenic, and caffeic acids. **Alasalvar (2001).** Phenolic compounds are dietary antioxidants found in plants that are shown to inhibit LDL oxidation, inhibit platelet aggregation and adhesion, decrease total and LDL cholesterol, and induce endothelium- dependent vaso-relaxation = **Mendes et al., (2003), Vita JA (2005), and Lapointe et al., (2006).**

Onion has a wide range of beneficial actions on the body and when eaten (especially raw) on a regular basis will promote the general health of the body. The bulb is anthelmintic, anti-inflammatory, antiseptic, antispasmodic, carminative, diuretic, expectorant, febrifuge, hypoglycaemic, hypotensive, lithontripic, stomachic and tonic. When used regularly in the diet it offsets tendencies towards angina, arteriosclerosis and heart attack. This is used particularly in the treatment of people whose symptoms include running eyes and nose. (**Sampath Kumar et al 2010**).

Tomatoes, which are actually a fruit, are loaded with all kinds of health benefits for the body. They are delicious too and have tons of vitamins and minerals in them that our body needs. One of the most well known tomato eating benefit is its Lycopene content. Lycopene is a vital anti oxidant that helps in the fight against cancerous cell formation as well as other kinds of health complications and diseases (**Ganesan et al 2012)**

Cabbage had large amounts of antioxidants (phenolic compound). Cabbage is abundant in vitamin C. which, being one of the best antioxidants, reduces free radicals in your body which are the basic causes of ageing **Ali, and Atwaa (2013).**

Pumpkins are a natural source of dietary fiber and antioxidant compounds. Diets rich in fruits and vegetables positively influence on plasma lipid profiles. The positive roles of their fiber in health and disease particularly in digestive tract health, energy balance, cancer, heart and diabetes justify the demand of increasing dietary fiber content in the daily diet. The **,** health organizations recommended the ingestion of 30- 45 g per day and high dietary fiber formulated food products are currently being developed **Zaki et al (2013)** .

Roots and tubers generally serve as a major source of carbohydrate or energy and provide minor amounts of proteins, fats and oils, minerals and vitamins. Taro has high nutritional value, and can also be stored for a longer time than all other root crops, without much change in quality and taste. Taro is comparatively cheaper than other roots and tubers, promoting such taro food products are important and will help greatly in enhancing nutrition (**Darkwa and Darkwa 2013)**

Our investigation of studying was suggestion 5 formula of dried soup from vegetables which contain high vitamins and high anti oxidants and bioactive compounds. This formula soup can improve body immunity and also, protect human body from diseases.

Materials and Methods

The green and red cabbage (*Brassica oleracea var.capitata*), Onion (*Allium cepa L.*), Oyster Mushrooms *(Pleurotus osteartus)*, Carrots (*Daucus carota*), Tomato (*Lycopersicon esculentum Mill*.), Pumpkin (*Cucurbit moschata, Balady*) and Taro (*Colocasia esculenta*) were purchased from a local market in Giza (Egypt).

2- Methods:

Technological process:

2-1-Preparation of Dried Vegetables Material: The green and red cabbage, Onion, Oyster Mushrooms, Carrot, Tomato, Pumpkin and Taro were washed and then dried well with tissue paper.

2-2-Drying Process: These vegetable were cutting into sliced (0.8-1.0 cm) using stainless steel knife. An aliquot amount of the tested samples were dehydrated by using an air forced oven at 50ºC overnight. The dried period was continued until the samples reach a constant weight. The different dried samples were milled by a hammer and sieved, then tightly packed in cellophane pouches and storage at room-temperature (25°C±2) until using according to **Siham *et al*., (2004).**

2-3- Preparation of soup formula: The dried vegetables were mixed in different ratio. Five formula of soup were recorded in table (1). Formula (1) contains cabbage 15%, mushroom 30%, pumpkin 15%, Taro 10%, carrots 10%, onion 10% and tomato 10%., formula (2) contains cabbage 30%, mushroom 15%, pumpkin 15%, Taro 10%, carrots 10%, onion 10% and tomato 10%., formula(3) contains cabbage 15%, mushroom 15%, pumpkin 30%, Taro 10%, carrots 10%, onion 10% and tomato 10%., formula (4) contains cabbage 15%, mushroom 15%, pumpkin 10%, Taro 30%, carrots 10%, onion 10% and tomato 10% and formula (5) contains cabbage 20%, mushroom 20%, pumpkin 20%, Taro 10%, carrots 10%, onion 10% and tomato 10%.

Table (1): Composition of 5 Formulas:

Formulas no	Carrot %	Onion %	Tomato %	Taro %	Mushroom %	Pumpkin %	Cabbage %
1	10	10	10	10	15	15	30
2	10	10	10	10	30	15	15
3	10	10	10	10	15	30	15
4	10	10	10	30	15	10	15
5	10	10	10	10	20	20	20

Chemical analysis of Soup Dried Formulas:

Moisture content, protein, ash, crude fiber and ether extract were determined in the raw material according to the method of **AOAC (2005)** and the carbohydrate contents were calculated by difference. Vitamins were determined according to **Batifoulier et al., (2005)**, **Pyka and Sliwiok (2001),Tomãs et al (2007) and Romeu et al., (2006)**. Flavonoid compounds were extracted according to the method described by **Mattila (2000**). The supernatant was collected in vials for injection into a HPLC instrument (Hewlett packecd, series 1050) composed of a C18 hypersil BDS column with a particles size of 5 µm. Separation was carried out with methanol and actonitrile as the mobile phase, using a flow rate of 1 ml/min. Quantification of the flavonoid compounds was carried out using a standard flavonoid calibration curve. Phenol compounds were determined as **Goupy et al (1999)** methods.

Sensory evaluations of products:

The quality attributes (taste, color, flavor, odor and texture) for produced dried vegetables soup compared with fifth formula, (control). Using suggested was evaluated for their sensory characteristics by ten panelists from the staff of the Processing Crops, Research Dep., Agric. Res. Center, Giza. acceptability giving numerical scores to each of their attributes from 10 panelists. The produced was organoleptically judged by groups of panel testers. The qualities were scored on a scale (1 to 10), according to **Watts et al., (1989).**

Statistical analysis:

Analysis of data: Data Collected were subjected to the analysis of variance **(SAS, 2002)**. Mean separation were done where there was significant differences using Duncan multiple range test procedure as described in the SAS soft ware. Significance was accepted at $P<0.05$.

Results and Discussion

Chemical composition of dried soup formulas:

Soups chemical compositions of dried five formulas are recorded in Table (2) where fat contents were ranged between 1.57 to 2.73%. There were no significant differences between formulas 1 and 4, while non significant increase was noticed among the others. Relatively high protein ranged from 15.81 to 19.09% and this was insignificant for formula 2 and 4 and was significantly differences between the rests. In case of ash content, it was higher in formulas 2 and 3 (12.42: 11.27%) than was in 1, 4 and 5 (8.01, 9.01 and 8.41%), there were significant between all formula except 1 and 5, meanwhile fiber was significantly differ in all formulas as seen in Table2. in regarding to carbohydrate, it was slightly differ especially in formula 4 than 1 and 5 but were all greatly high than 2 and 3. The results are in agreement with **Darkwa and Darkwa (2013)** concerning taro flour of ash content of 4.01%, protein 3.43%, carbohydrates 0.74%, dry matter 85.32%, and fat 0.18%. Similarly**, Zaki *et al* (2013)** reported that pumpkin contains 12.46% moisture, 3.85% in protein, 5.23% ash, 8.57% crude fiber, 79.24% total carbohydrates and 3.11% ether extract, a data proved that dehydrated pumpkin contained a significant high amount of protein, ash and crud fiber. Also**, Yalcin and Kavuncuoglu (2013)** showed that onion seeds were of high amount of oil (21.86%-25.86%) and crude protein (15.7%- 26.1%). It was determined that moisture content of samples was in the range of 6.49-9.79% while ash content was between 3.58- 4.80%.

Table (2): Chemical composition of dried 5 formulas soup:

Formulas no.	fat	protein	ash	fiber	carbohydrates
1	1.57±0,03[c]	17.65±0.15[b]	8.01±0.32[d]	10.57±0.24[e]	62.2±0.57[a]
2	2.54±0.13[ab]	17.02±0.02[c]	12.42±0.09[a]	14.69±0.22[a]	53.33±0.58[c]
3	2.73±0.02[a]	19.09±0.8[a]	11.27±0.07[b]	13.38±0.26[b]	53.53±0.57[c]
4	1.57±0.03[c]	17.02±0.02[c]	9.01±0.003[c]	12.21±0.14[c]	60.19±0.57[b]
5	2.44±0.02[b]	15.81±0.32[d]	8.41±0.23[d]	11.24±0.13[d]	62.1±0.56[a]

***As dry weight basis. Each mean value, within the same row, followed by the same letter is not significantly different at 0.05 level. Each value, mean of three replicates, is followed by ± standard deviation. 1: formula had 30% of cabbage, 2: formula had 30% of mushroom, 3: formula had 30% of pumpkin, 4: formula had 30% of Taro, 5: formula had 20% of cabbage, mushroom and pumpkin.**

Mineral composition of dried 5 soup formulas: The data confirmed that dried mixture of formula soups contain a considerable amount of minerals such as Mg, Na, K, Fe, Ca, Zn and Cu .The results were recorded in Table (3). It showed high ratio of Mg, Na, K, Fe, Ca, Zn and Cu in formula 1. Moreover, data showed that formula (1) contain highest ratio of Na (449.94 mg/100g ,(K (646.81 mg/100g ,(Fe (0.933 mg/100g) and Ca (408.19 mg/100g than the other formulas and contain a considerable amount of Mg (115.23 mg/100g ,(Zn (0.243 mg/100g (and 0.536 mg/100g . These remarkable high contents of those minerals may be due to the high ratio of cabbage (%30) in these formulas. However, Ali **and Atwa (2013)** found that cabbage had higher level of minerals content of Mg, Na, Mn, K, Zn, Fe and Ca. F1 is rich of Na and Ca.

Table (3) mineral composition of 5 formulas soup:

Formulas no.	Mg	Na	K	Fe	Ca	Zn	Cu
1	115.23	449.94	646.81	0.933	408.19	0.243	0.536
2	79.35	219.35	555.23	0.766	120.85	0.274	0.548
3	373.77	142.46	429.95	1.24	96.58	0.289	0.518
4	75.37	80.37	633.28	0.712	151.03	0.215	0.604
5	112.65	189.10	654.84	0.925	210.49	0.259	0.540

1: formula had 30% of cabbage, 2: formula had 30% of mushroom, 3: formula had 30% of pumpkin, 4: formula had 30% of Taro, 5: formula had 20% of cabbage, mushroom and pumpkin

On the other side, formula2) of Mushroom (%30) gave the least Mg and relatively high amount of Cu. The highest amount of Fe and Ca as well are found in F3, while F4 is the best in providing with Cu, where in K is the most remarkable in F5.

On the other side, formula) 2 of Mushroom (%30) gave the least Mg and relatively high amount of Cu. The highest amount of Fe and Ca as well are found in F3, while F4 is the best in providing with Cu, where in K is the most remarkable in F5.

Table (4) Fat soluble vitamins mg/100g of 5 formulas soup:

Formulas no.	Vit A	Vit k	Vit D	Vit E	B- Carotene
1	0.027	12.650	0.135	0.062	0.595
2	0.068	22.597	0.0443	0.202	0.279
3	0.145	26.825	0.177	0.201	56.619
4	0.089	16. 177	0.097	0.086	10.280
5	0.061	16.824	0.149	0.193	5.486

1: formula had 30% of cabbage, 2: formula had 30% of mushroom, 3: formula had 30% of pumpkin, 4: formula had 30% of Taro, 5: formula had 20% of cabbage, mushroom and pumpkin

These results are in line with **Ganesan et al (2012)** who reported that tomato is an excellent source of nutrients, including folate, vitamin C and various other carotenoids and phytochemicals such as polyphenols, which also may be associated with lower cancer risk. Tomatoes also contain significant quantities of potassium, vitamin A and vitamin E . **In addition, Sampath Kumar *et al*** (2010) mentioned that onion contains vitamins A and C**. however, EL-Sharouny (2001); Zaki et al, ,(2006)Hussien (2001 (and Egbkun et al., (1998 ,(**who stated that pumpkin pulp is a fair source of vitamin C as ascorbic acid content recorded 16 mg/ 100 mg, meanwhile, **Lako et al., (2007 (**reported that pumpkin contained significant amount of -β-carotene.

Table (5) Water soluble vitamins mg/100 of 5 formulas soup:

Formulas no.	Vit C	Vit B				
		Nicotinic acid	**Thiamin**	**pyridoxine**	**Folic acid**	**Riboflavin**
1	31.004	55.279	8.615	-	3.845	17.316
2	24.164	42.240	5.529	-	3.234	11.970
3	14.543	73.823	4.794	4.240	1.809	6.834
4	23.675	8.165	9.601	-	4.010	17.118
5	33.341	59.376	7.057	-	3.177	13.280

1: formula had 30% of cabbage, 2: formula had 30% of mushroom, 3: formula had 30% of pumpkin, 4: formula had 30% of Taro, 5: formula had 20% of cabbage, mushroom and pumpkin.

The results of water soluble vitamins are shown in Table (5) where in the highest level of vitamin C was found in F5 and other vitamins B complex, eg, Nicotinic acid, Thiamin, pyridoxine, Folic acid and Riboflavin are distributed as folows: formulas 3, 4, 3, 4 and 1, respectively. In this respect, **Bhowmik et al (2012** stated that,vitamins as A, B and C high in tomatoes, which is the third source of vitamin C in our diet and the fourth for vitamin A, and beta-carotene or pro vitamin A plus phytosterols compounds that help to keep cholesterol under control. Moreover, **Ganesan et al (2012)** confirmed that tomatoes contain significant quantities of potassium, as well as some vitamin A and vitamin E, but Cabbage is a good detoxifier, food agent that purifies blood and removes toxins ,This detoxifying effect is due to the presence of vitamin C and sulphur (**Tang et al., (2007), Steinbrecher and Linseisen, (2009) and Silberstein and Parsons, (2010)** aproved that taro had very high antioxidant activity that supported by an assay measuring lipid peroxidation **Lindsey et al** ,**(2002).**

Regarding phenols compounds formulas under study, Table (6) demonstrated that they are all contain phenols in different ratio as determined by HPLC. From which are gallic acid, Pyrogallol, 4-amino benzoic acid ,Protocatechuic acid, Catechin, Cholrogenic acid, Catechol, Epicatechin, Caffein, P-OH benzoic acid, Caffeic acid, Vanillic acid, Ferulic acid, Ellagic acid, Benzoic acid, Salycilic acid, Coumarin and Cinnamic.

In fact, formula 5 followed with 1 and 2 are containing the highest levels of most phenol compounds. The least amount of polyphones is can be obtained in formula 4. These differentiations may due to more pumpkin, cabbage, mushroom and kolkas. In general cabbage contains highest amount of gallic acid, Epicatechin, Caffein and P-OH benzoic acid (Formula 5). So far, other formulas can be distinguished. ***Zaki et al* (*2013)* Also*, zaki et al (2013)*** was recommended dried pumpkin for more ascorbic acid and β- carotene. For other nutrients, ***Ganesan et al (2012*) involved** tomatos for nutrients including folate, vitamin C and various other carotenoids and phytochemicals, such as polyphenols**, meanwhile*, Joseph et al. (2002)* mentioned that** major phytochemicals in carrots are the carotenoids α-carotene ,β-carotene, β-cryptoxanthin, lutein, zeaxanthin and falcarinol, a polyacetylene compound .. Phenolics particularly isocoumarin called

6-methoxymellein are initially thought to cause the more recent study identified another polyacetylene, falcarindiol, ((Z)-heptadeca-1, 9-dien-4,6-diyn-3,8-diol), as the major contributor to the bitter taste in carrots (***Czepa & Hofmann (2004***).

Table (6) Phenols compounds mg/100g of 5 formulas soup:

Phenol compounds	formula1	Formula 2	Formula 3	Formula 4	Formula 5
Gallic acid	2.9454596	2.3365599	1.9045395	2.2860349	1.3888607
Pyrogallol	93.303118	102.44635	107.93384	83.525183	108.3405
4-amino benzoic acid	0.7563774	1.4368061	1.9409478	1.2487067	0.129224
Protocatechuic acid	8.8965915	9.506117	5.1234085	10.771287	5.0238364
Catechin	4.0588151	2.9553372	0.9793919	3.4575795	4.0013872
Cholrogenic acid	6.3164389	5.9641806	7.4520707	6.650972	3.1447049
Catechol	2.1401851	1.9733081	2.0486674	1.0667846	2.5208028
Epicatechin	12.935485	8.8924411	11.119349	8.5295639	3.3277409
Caffein	1.4644005	0.9168431	1.2721162	1.0096022	1.1910867
P-OH benzoic acid	6.108061	4.4310682	5.4246939	5.5106006	2.8118425
Caffeic acid	1.4682343	1.5883561	0.2891009	0.251576	1.9488879
Vanillic acid	1.4194727	2.1988488	1.2550409	2.0053431	1.8905807
Ferulic acid	1.2216426	1.0033019	1.1546221	1.0821298	1.6477351
Ellagic acid	4.0836091	1.4345681	2.3289251	3.9165003	14.65295
Benzoic acid	2.8905725	16.769578	7.4582606	3.8677943	8.9814014
Salycilic acid	1.2652315	2.3402697	1.1246093	1.5315058	1.6233376
Coumarin	0.3745827	1.054464	0.3832131	0.3139251	0.632144
Cinnamic acid	0.7129755	0.1641185	0.1789179	0.1668763	0.2764303

1: formula had 30% of cabbage, 2: formula had 30% of mushroom, 3: formula had 30% of pumpkin, 4:formula had 30% of Taro, 5: formula had 20% of cabbage, mushroom and pumpkin

However, **Joseph et al. (2002)** mentioned that the major phytochemicals in carrots are the carotenoids α-carotene ,β-carotene, β-cryptoxanthin, lutein, zeaxanthin and falcarinol polyacetylene compound have been found to be among the most bioactive and therefore of particular importance in terms of health **.** On **the other hand, Hansen et al.(2003); Zidorn et al. 2005 Ali and Atwa (2013) (** reported that green cabbage had higher contents of total phenols and antioxidants than the red cabbage. Moreover, **Tang et al., (2007)** found that cabbage contain high amounts of phenols and antioxidants.

Concerning flavonoids compounds such as Narengin, Rutin, Hisperdin, Rosmarinic, Quercetrin, Quercetin, Narenginin, Kampferol, Luteolin, Hispertin and 7-OH flavones were exhibited at different levels in Table7. Again, as what

happend to polyphenols, formula 5 has been found to contain highest amount of most fractions as Narengin, Rosmarinic, Kampferol and Luteolin, while formula 2 posses the highest amount of Rutin and Hisperdin. The highest amount of Quercetin was prudence in formula 4. It is an obvious that formula 1 is poorest source for flavonoid comparing to the other formulas.

Table (7) Flavonoids of 5 formulas soup:

Flavonoid compounds	Formula1	Formula 2	Formula 3	Formula 4	Formula 5
Narengin	36.747914	25.784221	14.65128	5.8961069	45.163341
Rutin	3.0504918	7.8476779	1.875939	0.8720733	2.0053826
Hisperdin	16.366854	28.133826	23.928921	12.762842	18.463501
Rosmarinic	0.1703215	2.1202713	1.6736548	1.5842925	2.7872385
Quercetrin	1.7781969	2.1840008	1.5748607	2.9561576	3.1838607
Quercetin	0.4744862	1.0131069	0.8888319	3.1522439	0.8825901
Narenginin	0.067582	0.1287298	0.1050735	0.0793259	0.3050934
Kampferol	2.0431825	4.3221197	2.6207731	2.4319347	5.5592264
Luteolin	0.1308794	0.323348	0.2755495	0.1769175	4.8134625
Hispertin	0.2072863	0.8047097	0.467401	0.1213305	1.756685
7-OH flavone	0.1369536	0.168493	0.0411649	0.0386678	0.2301965

1: formula had 30% of cabbage, 2: formula had 30% of mushroom, 3: formula had 30% of pumpkin, 4: formula had 30% of Taro, 5: formula had 20% of cabbage, mushroom and pumpkin

zaki et al (2013) pointed out that dried pumpkin is better source for **flavonoids and Boyer and Liu, (2004), Leontowicz et al., (2007) and Jensen et al.,(2009). Lako et al., (2007)** reported that polyphenols in pumpkin amounted 23 mg GAE /100 g while flavonoids in pumpkin was 1 > mg/100 g only .

Sensory evaluations of dried five formula of soup were recorded in Table (8). The results showed that sensory evaluation scores of all formula had no significant difference between them in taste, color, flavor, odor and texture . Also, the data showed formula 1 and 4 had a high score in taste, color ,flavor and texture .These results return to the content of all formula had same content but the differences were from the different ratio of some contents. Also, the different ratio of content gave the formula the same test approximately but changed in the analysis of them .The results agree with **Ali and Atwa (2013)** who said that soup of cabbage with noodles in different ratios had the same score and no significant difference between them.

Table (8) Panel test of 5 formulas soup:

Formulas no.	taste	color	flavor	odor	texture
1	9.40±0.16[a]	8.40±0.22[a]	8.20±0.29[a]	7.90±0.27[a]	8.50±0.16[a]
2	8.30±0.39[b]	8.00±0.39[a]	7.80±0.41[a]	7.50±0.37[a]	7.90±0.31[a]
3	8.60±0.26[ab]	7.80±0.29[a]	7.90±0.27[a]	7.80±0.32[a]	8.10±0.23[a]
4	9.00±0.29[ab]	8.70±0.33[a]	8.30±0.30[a]	8.10±0.34[a]	8.50±0.31[a]
5	8.60±0.33[ab]	8.00±0.36[a]	7.90±0.31[a]	7.70±0.36[a]	8.18±0.34[a]

1: formula had 30% of cabbage, 2: formula had 30% of mushroom, 3: formula had 30% of pumpkin, 4: formula had 30% of Taro, 5: formula had 20% of cabbage, mushroom and pumpkin

Conclusion:

The research aims to produce vegetable soup with pure components of dry vegetables a natural source in the form of five components of the 7 types of vegetables .These vegetables were chosen for this investigate had a rich of functional foods as phytochemicals and bioactive compounds which include)vitamins, minerals, antioxidants (that protect the body from diseases and activate immune system of the body .Considering its low cost ,and which improve substantially the lipid status and liver enzymes and showed hypocholesterolemic and hypolipidemic .For example; Cabbage is abundant in vitamin C. which, being one of the best antioxidants, reduces free radicals in your body which are the basic causes of ageing .Onion had physico-chemical properties and contents of oil and volatile components. Mushrooms have a great nutritional value since they are quite rich in protein, with an important content of essential amino acids and fiber, and poor in fat. Diets rich in fruits and vegetables positively influence on plasma lipid profiles .The current study showed that 5 dried formulas have considerable amounts of all the above-mentioned .These 5 formulas can be used as untraditional and a cheap, thus encourage the potential use in as a food can protect body against several diseases.

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الملخص العربى

المكونات الكيميائية والنشطة حيويا فى خليط شرب الخضروات السريعة وقيمتها الغذائية.

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تم الاتجاة فى هذة الدراسة الى تقليل تأثيير المصنعات الغذائية الصناعية والمضيفات الغذائية بأستخدام مصادر طبيعية مختلفة من الخضروات والتى لها تاثير الحماية من الامراض، معظم هذة المصنعات الغذائية الصناعية والمضيفات الغذائية لها تأثيرات جانية على الصحة، ومع الزيادة فى وجود بعض الامراض المزمنة مثل السرطنات وأمراض التى تصيب الجهاز العضلى وخاصة فى البلاد الصناعية تم الاهتمام باهمية الغذاء ، تستخدم الخضروات كاطباق بجانب الطعام أو بطهى اجزاء منها.

وتعتبر الفاكهة والخضروات تاريخيا من المصادر الغنية ببعض العناصر الغذائية الدقيقة والالياف الغذائية وقد اوضحت الدراسات الحديثة اهمية هذة المصادر وخاصة الفيتو كيميكل الغذائية بجانب العناصر الاخرى والتى لها فوائد غذائية، لذلك بعض الناس تعتبر الفاكهة والخضروات من الاغذية الوظيفية وبعض البيولوجيين يعتبرها من مواد الحماية وخاصة احتوائها على مضادات الاكسدة والفيتوكيميكل النباتية والكلوروفيل والصبغات النباتية الموجودة طبيعيا فى الخضروات والفاكهة، ومن هذة المواد الفيتامينات مثل فيتامين ج والبتاكاروتين والمواد الفينولية والفلافينونيدات ومضادات الاكسدة الموجودة طبيعيا فى الفاكهة والخضروات لها تاثيير الحماية للجسم .

ومن خلال الدراسة المقدمة من خلال المكونات المختلفة (5 تركيبات مختلفة بنسب مختلفة من الخضروات) انها تحتوى على قدر كبيير من المعادن والفتامينات المختلفة ومضادات الاكسدة وقد حصلت من خلال التقييم الحسى على درجة عالية من القبول لذلك نوصى من خلال هذة الدراسة بأهمية تناول الخضروات والفاكهة بكثرة فى الغذاء لحصول الجسم على الحماية والوقاية من الامراض.