COMMENTARY

Cancer and its Prevention by Some Horticultural and Field Crops in Turkey

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Abstract

Diet is considered to play an important role in the etiology of carcinogenesis, and almost 30 % of cancer development is known to have a dietary background. Many diets appear to contain groups of food components that can prevent, slow down, or even reverse carcinogenesis. In the present commentary, discussion is focused on the following crops: almonds, apricots, plums, peaches and nectarines, cherries, pears, figs, chestnuts, hazelnuts, pistachios, walnuts, grapes, strawberries, avocados, bananas, olives, lemons and limes, oranges (tangerines, mandarins, clemetines, satsuma), grapefruit and pomelons, artichokes, potatoes, green beans, carrots, cabbages, melons, watermelons, pupkins, cucumbers, garlic, cauliflower, peppers, eggplants, tomatoes, onions, dry bean, soybeans, maize, barley, wheat, rye, and lentils. According to results some of epidemiology, numbers of horticultural and field crops of Turkey are likely to be associated with reduced risk of different cancers. Associations with protection in individual cases are here reviewed reviewed.

Key Words: Horticultural and field crops - nutrition - cancer prevention - Turkey

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Introduction

The tenet "Let food be thy medicine and medicine be thy food!" espoused by Hippocrates nearly 2500 years ago has experienced a resurgence as consumers began to turn to food to optimize their health and well-being. In the new millenium, the relationships between food and human health have acquired enormous importance in the media, in the public mind and in terms of scientific developments. Consumers are being bombarded with nutrition information and are beginning to understand the powerful influence of diet on health and well-being. Increased scientific evidence confirms that specific components in the foods are associated with the mitigation, treatment or prevention of certain chronic diseases such as cancer, osteoporosis, coronary heart disease, and even ageing itself. This trend has introduced the concept of functional foods. "Functional Food Science" has been suggested to be a new discipline to examine the role of food components in the metabolic events which sustain life, defend against environmental stress, and modulate physiological, behavior and psychological functions. A functional food is similar in appearance to conventional foods, is consumed as part of a usual diet, and has demonstrated physiological benefits and/or reduces the risk of chronic disease beyond basic nutritional functions (Akcicek and Otles, 2002; Graham, 1997; Otles and Akcicek, 2002).

Today, it is becoming increasingly clear that the focus of treatment must change dramatically, as scientists gain more insight into the cause of cancers. While many researchers have become convinced, many medical doctors and oncologists are still overcoming their previously deep rooted belief in the genetic origin of cancers. This belief has virtually discredited those who focus on lifestyle modification and a disease preventive diet as the primary defence against cancer, and since doctors thought genetics were the cause, surgery, medications and chemotherapy became widely accepted as the best "reaction" to the "genetic" malfunction. All of that is changing with current revelations provided by the human genome project, indicating that only 20 % of all cancer is genetically linked. This paradigm changing revelation has led many researchers to turn their attention to "phytochemistry", which is the study of plant-based compounds that act as cellular antioxidants. Some studies show a lack of green vegetables increases breast cancer risk nearly 25 %, with skin cancer results being

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very similar. One of the most important steps anyone can take to avoid cancer is to consume more deep green pigmented foods. With cancer rates climbing, researchers have noted that this type of dietary change must be the first line of defense (Sandoral, 2003).

Current research indicates that the foods we eat can influence our susceptibility to certain types of cancer. Generally, high fat diets are thought to increase the risk, while plant based diets - high in fresh fruits, vegetables, legumes and wholegrains, and minimally processed starchy foods - can help to prevent cancer. Diet is just one of the lifestyle factors that influence the risk of developing cancer. The strongest protective anti-cancer effects have been shown with a number of plant products, especially raw:

- Leafy green vegetables
- Onions and garlic
- Carrots
- Tomatoes
- Citrus fruits
- Cruciferous vegetables - such as broccoli, cabbage, brussel sprouts, bok choy and other greens.

These vegetables and fruits should not be eaten to the exclusion of other varieties. Eating a variety of all fruits and vegetables will provide the greatest number of protective factors. Many nutrients found in plant foods have been linked to reducing cancer risk. For example, diets rich in the phytochemical lycopene may reduce the risk of prostate cancer, fiber-rich diets have been shown to reduce the risk of colon cancer, and choosing a diet low in fat helps to prevent breast and other types of cancer (Anon, 2003a and b; Otles and Pire, 1999).

Turkey is leading producer and exporter of agricultural products including vegetables, fruits, grains and other horticultural and field crops, dairy, and poultry products. Turkish farmers also have expertise in the improvement of agronomic qualities of various crops and in the productions of organic foods. The aim of this review was to assess the situation regarding epidemiologically-identified horticultural and field crops of Turkey associated with reduction of risk for different cancers.

Active Compounds in Foods and Health Effects

Although cancer can affect many different parts of the body, the foods that prevent cancer and deter cancer growth are generally the same. Fruits, vegetables, grains, and legumes all have important nutrients and phytochemicals that strengthen immune function and destroy cancer-causing substances (Anon, 2003b and c).

They include carotenoids such as β-carotene, vitamin C, vitamin E, selenium, dietary fiber, as well as substances such as dithiolthiones, isothiocyanates, indoles, phenols, and phytoestrogens. Many of these have been shown, in experimental studies, to be potentially anticarcinogenic. . The cancer process from exposure to carcinogens or their precursors, through the changes that allow a cell with abnormal DNA to grow and multiply, to the appearance of a cancer involves many stages. At almost every stage, known phytochemicals can alter the likelihood of carcinogenesis, occasionally in a way that enhances risk, but usually in a favorable direction. For example, such substances as glucosinolates and indoles, isothiocyanates and thiocyanates (particularly rich in crucerifous vegetables) can stimulate organs in the body to produce a multiplicity of enzymes that can inactivate carcinogens, vitamin C and phenols (present in wine and vegetables) block the formation of carcinogens such as nitrosamines, flavonoids and carotenoids (widespread in vegetables and fruit) can act as antioxidants, essentially disabling the carcinogenic potential of a number of cancer-causing compounds; some sulphur-containing compounds- such as those found in garlic and onions- and some carotenoids can suppress the machinery that allows the growth and division of cancer cells. Phytoestrogens (which are found in soybeans and also can be made from dietary fiber by bacteria in the colon) may be able to reduce the risk of hormone-related cancers but may alos have other benefits against chronic diseases. Colonic fermentation of dietary fiber (found in vegetables and grains) produces volatile fatty acids that may induce cancer cells to undergo programmed cell death (Anon.2003d). Table 1 summarizes the bioactive compounds and health effects of foods grown in Turkey (Anon, 2003e-h; Balch and Balch, 2000; Bendich and Deckelbaum, 2001; Etherton et.al., 2002; Goulart, 1995; Murthy, 1997; Otles et.al. 1996a and b; Reddy et.al. 2003; Rudge, 1999; Schmidt and Pitman, 1999; Wildman, 2001).

Agriculture and Economics of Functional Foods

Due to its particular climate, soil and geographic conditions, Turkey has a wide range of agricultural production. Up to the year 2002, reports with about 28,834,510 tons of vegetable production and 3.2% of the world production Turkey is at the fourth place in the world. However in fruit production with 10.857.130 ton and 2.3% of the world production is at the seventh place (Anon, 1996 and 2003i-j). Turkey is at the second place of cucumber, melon, pumpkin and watermelon production and at the third place of green bean, eggplant and tomato production however of dry onion production is at the fourth place in the world. Due to suitable climatic conditions Turkey is at the first place of dry apricot, dry fig and nut production, at the second place of cherry production, and at the third place of apple and chestnut production, however is at the fourth place of olive, pistachio, plum and walnut production. Turkey is amoung the first 20 countries by production amount of dry bean, cabbage, carrot, cauliflower, artichoke, garlic and potatoe however is amoung the first 12 countries on almond, grape, grapefruit, lemon, orange, peach, strawberry and mandarin production in the world. In these products dry fig, seedless grape, nut and dry apricot are amoung the products which have the highest chance of being exported.

With 7.500.000 ton of barley production Turkey is at the sixth place in the world, with 480.000 ton lentil production

Table 1. Bioactive Compounds and Health Effects of Foods Grown Large-scale in Turkey

Food	Component	Potential Benefit
Almonds	Polyphenols	neutralizes free radicals, may reduce risk of cancer
Apple	Quercetin, epicatechin,chlorogenic acid, p-coumaric acid, phloridzin	potential anticarcinogenic compounds
Apricot	Lignin	potential anticarcinogenic compounds
Artichokes	Chlorogenic acid, cynarin	stimulates liver activity by promoting circulation within the liver, inhibits oxidation of LDL cholesterol and increases healthful levels of HDL (protective) cholesterol
Avocado	Beta-sitosterol, glutathione	prevents certain cancers and heart disease
Banana	Phytochemicals	some health effects
Barley	Saponins	may lower LDL cholesterol; contains anti-cancer enzymes
Bean, dry	Saponins	may lower LDL cholesterol; contains anti-cancer enzymes
	Phenolic compounds	inhibits aflatoxin-induced cancer
Bean, green	Carotenoids	protects the body by decreasing risk of heart disease, stroke, blindness, and certain types of cancer
Cabbage	Indoles and isothiocyanates	may help in trigerring enzymes that may act to block carcinogenic damage to the cell DNA
	Lutein, zeaxanthin, vitamin C	inhibits various cancers
Carrot	Alpha-carotene	neutralizes free radicals which may cause damage to cells
	Alpha and beta carotene, Polyphenols	protects against the environmental pollutants, inhibits pancreatic, colon, breast cancer;
Cauliflower	Indoles and isothiocyanates	may help in trigerring enzymes that may act to block carcinogenic damage to the cell DNA
	Lutein, zeaxanthin, vitamin C	inhibits various cancers
Cherries	Anthocyanins	protect against the signs of aging
	Quercetins	inhibit the growth of head and neck cancers
Chestnut	Saponins	may lower LDL cholesterol; contains anti-cancer enzymes
	Flavonoids	inhibits various cancers
Cucumber	Lutein, indoles	anti-cancer activity
Eggplant	Phytochemicals	may prevent carcinogens from forming, shield cells from carcinogens, or neutralize cancer-causing free radicals
Fig	Anthocyanins and phenolics	antioxidant and anti-aging benefits
Garlic	Diallyl sulfide	lowers LDL cholesterol, maintains healthy immune system
	Sulphur compounds	which triger enzymes that helps to excrete carcinogens from the body
	Selenium	inhibits stomach cancer
	Quercetins	inhibit the growth of head and neck cancers
Grapefruit and Pomelons	Vitamine C and Flavonoids	act as antioxidants which can inhibit cancer cell growth
	Limonene	helps to protect the lungs and reduce the risk of certain types of cancer
Grapes	Antocyanidins	potential anticarcinogenic compounds
	Resveratrol	carcinogen detoxification and lowers tumor initiation
	Catechins	inhibits various cancers
	Ellagic acid	reduce the risk of certain types of cancer and decrease cholesterol levels
	Quercetins	inhibit the growth of head and neck cancers
Hazelnut	Beta-sitosterol	helps reducing the cholesterol level, preventing many diseases such as various cancer types (colon, prostate and breast especially), hindering the tumor growth and stimulating apoptosis
Lemons and Limes	Caffeic acid	antioxidant-like activities, may reduce risk of degenerative diseases; heart disease, eye disease
	Ferulic acid	
	Flavanones	neutralizes free radicals, may reduce risk of cancer
	Flavones	potential anticarcinogenic compound
	Zeaxanthin	contributes to maintenance of healthy vision
	Vitamine C and Flavonoids	act as antioxidants which can inhibit cancer cell growth
	Terpenes	potential anticarcinogenic compound
	b-Cryptoxanthin, bioflavonoids, chalcones	inhibits various cancers
	Hesperidin	protect against heart disease
	Limonene	helps to protect the lungs and reduce the risk of certain types of cancer

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Table 1. Bioactive Compounds and Health Effects of Foods Grown in Turkey

Food	Component	Potential Benefit
Maize	Phytochemicals	some health effects
Melon	Bioflavonoids, vitamin C, Chalcones	neutralizes free radicals, may reduce risk of cancer, inhibits various cancers
Olive	Polyphenols	inhibits various cancers
	Diallyl sulfide	lowers LDL cholesterol, maintains healthy immune system
	Flavonols	lowers LDL cholesterol, tumor initiation and promotion
Onion, dry	Fructo-oligosaccharides	may improve gastrointestinal health
	Sulphur compounds	which triger enzymes that helps to excrete carcinogens from the body
	Flavonols	lowers LDL cholesterol, tumor initiation and promotion
	Selenium	inhibits stomach cancer
Diallyl sulfide		lowers LDL cholesterol, maintains healthy immune system
Onion, green	Quercetins	inhibit the growth of head and neck cancers
Orange	Vitamine C and Flavonoids	act as antioxidants which can inhibit cancer cell growth
	Limonene	helps to protect the lungs and reduce the risk of certain types of cancer
Peaches and Nectarines	Carotenoids, bioflavonoids, lycopene, anthocyanins	inhibits various cancers
Pear	Quercetins	reduce inflammation associated with allergies, inhibit the growth of head and neck tumors
Pepper	Terpenes	potential anticarcinogenic compounds
Pistachios	Phytochemicals	anti-cancer activity
Plum	Anthocyanins	protect against the signs of aging
Potatoes	Beta-carotene	slows the aging process, reduces the risk of certain types of cancer, improves lung function, and reduces complications associated with diabetes
Pupkins, squash	Zeaxantin	prevent macular degeneration and certain types of cancer
	Beta-carotene	slows the aging process, reduces the risk of certain types of cancer, improves lung function, and reduces complications associated with diabetes
Rye	Lignans	may protect against heart disease and some cancers; lowers LDL cholesterol, total cholesterol and triglycerides
Soybean	Isoflavones ñ daidzein, genistein	diet high in these are associated with lower rates of cancers of breast, uterus and prostate
	Saponins	may lower LDL cholesterol; contains anti-cancer enzymes
	Stanol ester	lowers blood cholesterol levels by inhibiting cholesterol absorption
Strawberries	Bioflavonoids, vitamin C, Chalcones	neutralizes free radicals, may reduce risk of cancer, inhibits various cancers
	Ellagic acid	reduces the risk of certain types of cancer and decreases cholesterol levels
Tang.Mand.	Hesperidin	protect against heart disease
Clemet.Satsuma	Limonene	helps to protect the lungs and reduce the risk of certain types of cancer
Tomatoes	Quercetin, lycopene, rutin, prunin	may reduce risk of cancer of stomach, colon and prostate
Walnut	Polyphenols	neutralizes free radicals, may reduce risk of cancer
Watermelon	Carotenoids	protects the body by decreasing risk of heart disease, stroke, blindness, and certain types of cancer
	Lycopene	may reduce risk of cancer of stomach, colon and prostate
Wheat	Stanol ester	lowers blood cholesterol levels by inhibiting cholesterol absorption
	Insoluble fiber (in bran)	may reduce risk of breast and/or colon cancer
	Saponins	may lower LDL cholesterol; contains anti-cancer enzymes

is at the second place, with 21.000.000 ton wheat production is at the sixth place in the world. Also maize, rye and soybean production is not little.

On the point of vegetable, fruit and field crops cultivation which are mentioned, Turkey has a suitable conditions (Bailey, 1996; Fortham and Biggs, 1985; Holland et.al., 1992; Vural et.al., 2000; Vavilov, 1949-50; Westwood, 1978). Especially vegetable production is more commonly done at the western region of Turkey. Vegetable production can be done at the East and South East Anatolia regions where the climate is suitable for vegetable production. The same situation is also valid for fruit production. While some fruits can be cultivated more easily at the western region of Turkey where the climate is suitable, the others can be cultivated at the eastern region where it is more colder. Barley, wheat, rye and lentils are cultivated on arid regions however maize

Table 2. Crops Produced in Turkey and The World (Mt)

Crops	Genus	Total Production in the World (Mt)	Total Production in Turkey (Mt)	Place in World	Ratio in World %
Almonds	*Prunus dulcis(Mill)*	1.937.566	50.000	8	2.7
Appels	*Malus sylvestris Mill.*	57.094.939	2.500.000	3	4.4
Apricots	*Prunus armeniaca L.*	2.708.010	580.000	1	21.4
Artichokes	*Cynara scolymus*	1.263.813	26.000	10	2.1
Avocados	*Persea americana Mill.*	2.701.439	350	52	0.001
Bananas	*Musa x paradisiaca L.*	69.832.378	70.000	54	0.01
Barley	*Hordeum vulgare L.*	132.215.617	7.500.000	6	5.7
Bean, Dry	*Phaseolus vulgare L.*	18.334.318	236.000	16	1.3
Bean,Green	*Phaseolus Vulgaris L.*	5.645.816	460.000	3	8.1
Cabbages	*Brassica olaracea var. Capitata L.*	62.473.972	735.000	10	1.1
Carrots	*Daucus carota subsp.sativus*	21.020.436	235.000	19	1.1
Cauliflower	*Brassica oleracea var. Botrytis. L.*	15.053.841	88.000	15	0.006
Cherris	*Prunus avium L.*	1.787.261	250.000	2	14
Chestnuts	*Cestanea sativa Mill.*	954.188	50.000	3	5.2
Cucumbers	*Cucumis sativus L.*	36.397.195	1.750.000	2	4.8
Eggplants	*Solanum melongena L.*	28.926.457	970.000	3	3.4
Figs	*Ficus carica L.*	1.081.434	255.000	1	23.6
Garlic	*Allium sativum L.*	12.107.077	110.000	12	0.9
Grepefruits and pomelons	*Citrus paradisi Macfad*	4.979.781	140.000	8	2.8
Grapes	*Vitis vinifera L.*	61.018.250	3.600.000	6	5.9
Hazelnuts	*Corylus curnuta Marsh*	842.981	625.000	1	74.1
Lemons and limes	*Citrus limon (L.) Burn*	11.227.173	400.000	9	3.6
Lentils	*Lens culinaris Medik*	2.938.037	480.000	2	16
Maize	*Zea mays L.*	602.589.189	2.500.000	24	0.04
Melons	*Cucumis melo L.*	21.727.422	1.900.000	2	8.7
Olives	*Olea europaea L.*	13.976.487	1.500.000	4	10.7
Onions,Dry	*Allium cepa L.*	51.914.247	2.270.000	4	4.4
Onions,Green	*Allium cepa L.*	4.364.838	235.000	6	5.4
Oranges	*Citrus sinensis (L.) osb.*	64.128.525	1.200.000	11	1.8
Peaches and nectarines	*Prunus persica (L.)Batsch*	13.818.213	450.000	7	3.2
Pears	*Pyrus communis L.*	17.115.205	375.000	8	2.2
Peppers	*Capsicum annuum L.*	22.167.801	1.500.000	3	6.8
Pistachios	*Pistacia vera L.*	571.150	50.000	4	7
Plums	*Prunus domestica L.*	9.314.727	195.000	4	2
Potatoes	*Solanum tuberosum L.*	307.440.446	5.000.000	11	1.6
Pupkins,squash	*Cucurbita moshata(Duch,poir)*	16.912.375	9	2	
Rye	*Secale cerale L.*	21.212.151	235.000	9	1.1
Soybeans	*Glycine max (L.) Merr.*	179.917.302	60.000	29	0.003
Strawberries	*Fragaria sp.*	3.237.533	120.000	9	3.7
Tang.Mand. Clement. Satsuma	*Citrus reticulata Blanca*	18.792.909	450.000	12	2.4
Tomatoes	*Lycopersicon lycoprsicum Mill.*	108.499.056	9.000.000	3	8.3
Walnuts	*Juglans nigra L.*	1.300.000	136.000	4	10.5
Watermelons	*Citrillus lanatus*	81.839.727	3.900.000	2	4.8
Wheat	*Triticum aestivum L.*	572.878.902	21.000.000	6	3.9

and soybean cultivation are more commonly carried out on irrigated lands.

Productive effort of agricultural sector of Turkey is cheaper than developed countries and that is appears to be an important advantage. Also Turkey is exactly between rich markets (EU) on one side and markets which have deficient products (The Middle East, North Europe and Africa) on the other side.

Unfortunately, in many agricultural inputs like seed, agricultural pesticides and equipments Turkey is dependent on foreign sources. In this case the inputs of production are expensive. In order to increase agricultural production some precautions that can decrease the cost of production should be taken. Especially, producers who works for agricultural sector and products should be certificated and inputs which have prescription should be used and encouragement of contracted and insuranced production should be done.

Agricultural sector is known to be risky and uncertain. The main problem of agricultural sector, even recently in the countries where the most developed technology is used, is the effect of natural conditions such as disasters like drought, pests and diseases. For this reason great fluctuation can be seen in the production and prices.

Turkey has also an important position on organic

agriculture that has gained an importance during the last years and by this system of organic farming products are free from any chemicals. Organic agriculture is known as an agricultural production style which is controlled and certificated in all phases from planting till harvest. Without the use of pesticides, fertilizers, hormones, plant growth regulators. In organic farming only fertilizers of plant and animal origin are used. Also some materials of plant origin are used for the control of pests and diseases. The aim of organic agriculture is to keep natural balance while agricultural production is carried on and provide healthy products to humans. In organic farming proper rotation should be followed depending on the crops and the conditions of the soils.

Organic agricultural activities were started in Turkey in the mid of 1980 aiming at export. The first products which were produced are dry grape, dry fig and dry apricot that are typical Turkey's export products. Day by day parellel to European consumer's demands, the number of firms which practice organic farming have increased and many native investors attempted to produce and export products of organig farming. Today production and exportation is almost carried out by the private sector. Production which is practiced by private sector is done by making a contract between a firm and the producers on production, instalments, sale of crops. Inspector firms control the products of organic farming to bring them to the standard of the European Union. In the case the reports after control prove to be positive, the products can be exported. As for the year 2000 production of organic crops has developed and included processed food products and other agricultural products. These products are given in groups in the following:

Nuts Fruits: Hazelnuts, Walnuts, Pistachios, Almonds, Chestnuts

Dry Fruits: Grapes, Apricots, Plums, Figs, Apples, Cherries, Pears, Strawberries

Dry Vegetables: Tomatoes, Peppers, Mushrooms, Dry Onions, Dry Garlic

Fresh Fruits and Vegetables: Olives, Apples, Figs, Plums, Pears, Strawberries, Cherries, Berry, Watermelons, Lemons, Oranges, Grapefruits, Mandarin, Peaches, Tomatoes, Peppers, Cucumbers, Cauliflower, Eggplants, Carrots, Potatoes,

Legumes : Lentils, Dry Bean,

Field crops: Wheat, Rye, Maize, Barley

Frozen Vegetables-Fruits: Apricots, Strawberries, Cherries, Berry, Plums, Onions, Tomatoes, Peppers

Fruit Juice and their products: Apricots, Pears,

Others: Olive oil, Tomatoes pure, Jam, Vine, Roasted pepper

Amount of the organic products is produce according to 2000 year data is approximately 237.210 ton in Turkey. Like Turkey there is no exact statistics regarding production in organic agriculture.

First of all organic agricultural products are exported to EC, North Europe, USA, Canada and Japan. The exportation of the products of organic farming has increased steadily and the amount exported from Turkey was approximately 12.047 ton wise a value of 20.837.000 dollars ($).

Fruit and vegetables are important for human nutrition and health and it is important to understand this fact. And to evaluate them more as the demand for them is increasing. The use of new technologies and techniques and productive varieties led to increase of the production of fruit and vegetable inculuding Turkey. Regarding watermelon, melon, tomato, hazelnut, apricot and dry fig, Turkey comes in the frist ten countries in the world. Due to short period of harvest of apricot, part of it is consumed fresh rest is dried. In case of tomato a great part is consumed fresh. Among vegetables exportation of large quantities took place in tomato during the last years. Turkey is origin of many kind of vegetables and fruits. In Anatolia there are different ecological regions which make it possible to grow many kind of vegetable and fruit. Due to the work of some persons the production and quality and the number of varieties have been increased. Today due to change in consumer taste the number of varieties has increased.

Discussion

In cancer disease to take part in nutrition and other environmental factors in the front among of cancer reasons is came nutritions habits and other environments factors in the front (Lawson and Hughes, 1992; Dorent and Vander Brandt, 1993).

If distribution of the cases is compared with diet statistics obtained for Ankara and its environments, Black sea region and south east, it will be conceivable to accept a relation between diet and stomach cancer. Using more leaf cabbage reduces stomach cancer in Black sea region when compared to other regions (Eraslan, 1971).

Diets high in fruits or vegetables have been found to have inverse association with cancers of the esophagus, prostate, colon, and stomach. Diets have provided 400-600 g fruit and vegetables daily are associated with a reduced risk of lung and other aerodigestive epitheial cancers. Fruits and vegetables contain a variety of caretonoids that have been shown to have antioxidant and antitumor effects. Also intake of vitamins A, C and E corraleted inversely with cancers of the lung and esophagus. When we ingest fruits and vegetables, we are taking in caretonoids, vitamins some trace minerals, fiber, and number of minor components that have preventive properties. Among the latter are isothiocyanates and indoles, found in crucifereous vegetable; flavonoids, found in potatoes and fruits; sulfides, which occur in onions and garlic, and terpenes, present in citrus oils (Heber, 2000; Higginson and Sheridan, 1991; Kritchevsky, 1993).

Developed countries in order to make research fibrous green leaves increase pillar cancer of risk, broccoli, cauliflower and cabbage as vegetables contain compound enveiroment of cancerogen effects of protective have effective, these vegetables hormone of _strogen effect to tell cancer of chest risk. Carrot, cabbage, apricot and green vegetables in order to make works high of level contain of

carotene these vegetable and fruits especially raw eat cancer of lung risk to tell increase.

Carotenoids are just a few of the many phytochemicals found in fruit and vegetables. All the overall data suggest that carotenoids may contribute to lower the risk of lung cancer, the possibility remains that other phytochemicals found in similar foods are equally or more important in reducing carcinogenesis. It would be unwise to suggest carotenoid supplementation as an alternative to a diet plentiful in fruit and vegetables (Michaud et.al., 2000; Steinmetz, 1991).

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