



ISSN 2320-3862

JMPS 2016; 4(4): 124-131

© 2016 JMPS

Received: 25-05-2016

Accepted: 27-06-2016

P Kandasamy

Institute of Agriculture, Visva-Bharati (Central University), Sriniketan, West Bengal, India

C Shanmugapriya

Government Siddha Medical College and Hospital, Arumbakkam, Chennai, India

Medicinal and Nutritional Characteristics of Fruits in Human Health

P Kandasamy, C Shanmugapriya

Abstract

Fruits are various group of plant foods that wonderful gift to the mankind. They are great source of vitamins, minerals, simple sugars, soluble dietary fiber, many phyto-nutrients, phytoestrogens, anti-inflammatory agents and anti-oxidants. Fruits are low in calories and fat. Fiber intake is linked to lower cholesterol and fats from the body thus lower incidence of cardiovascular disease and obesity. It helps in smooth bowel movements as well as offer relief from constipation ailments. The anti-oxidant compounds such as poly-phenolic flavonoids, vitamin-C and anthocyanins help human body protected from oxidant stress, diseases, remove free radicals from the body, and thus offer protection against cancers, aging, infections, etc and develop capacity to fight against these ailments by boosting our immunity level. Fruit nutrition benefits are enormous including protecting minor ailments like wrinkling of skin, hair-fall, and memory loss and major ailments like age-related macular degeneration of the retina in the eyes, Alzheimer's disease, colon cancers, weak bones (osteoporosis), etc. In this paper, different variety of fruits available, levels of nutrition available in various fruits, health benefits of fruit nutrients and benefits of individual fruits have been discussed.

Keywords: fruits, vitamins, minerals, anti-oxidants, health benefits

Introduction

Fruit is a product of growth from an angiosperm, or flowering plant. From a purely botanical point of view, the fruit may be only the fleshy growth that arises from the ovary of a flower and may not necessarily include any other structures. From the consumer's or food processor's point of view, however, fruit is generally characterized as the edible product of a plant or tree that includes the seed and its envelope and can typically be described as juicy, sweet, and pulpy. Fruit development can generally be divided into three major stages: growth, maturation and senescence. The period of growth generally involves cell division and enlargement, which accounts for the increasing size of the fruit. Maturation is usually reached just prior to the end of growth and may include flavour development and increase in sugar content (detectable as increasing sweetness). Senescence is the period when chemical synthesizing pathways give way to degradative processes, leading to aging and death of tissue. Fruit ripening is thus the result of many complex changes, some interactive but many independent of one another. Fruits are a high-moisture, generally acidic food that is relatively easy to process and that offers a variety of flavour, aroma, colour, and texture to the diet. They are usually low in calories but are an excellent source of dietary fibre and essential vitamins. Owing to the presence of cellulose, pectin, and various organic acids, fruits can also act as natural laxatives. Fruits are therefore a valuable part of the diet.

2. Different variety of fruits

Fruits are classified according to the arrangement from which they derive. There are four types: (i) Simple (ii) Aggregate (iii) Multiple and (iv) Accessory fruits. Simple fruits develop from a single ovary of a single flower and may be fleshy or dry. An aggregate fruit (e.g. blackberry and raspberry) consists of a mass of small drupes, each of which developed from a separate ovary of a single flower. A multiple fruit (e.g., pineapple and mulberry) develops from the ovaries of many flowers growing in a cluster. Accessory fruits contain tissue derived from plant parts other than the ovary. The best-known accessory fruit is the pome (e.g., apple and pear), in which the fleshy edible portion is swollen stem tissue and the true fruit is the central core. Table 1 shows the different variety of fruits available to enjoy:

Correspondence

P Kandasamy

Institute of Agriculture, Visva-Bharati (Central University), Sriniketan, West Bengal, India

Table 1: Different varieties of fruits

S.No	Name of fruits	S.No	Name of fruits	S.No	Name of fruits
1.	Apple	11.	Gooseberry/Amla	21.	Orange
2.	Apricot	12.	Grapes	22.	Papaya
3.	Avocado	13.	Guava	23.	Peaches
4.	Bael/Wood apple	14.	Jackfruit	24.	Pears
5.	Banana	15.	Kiwifruit	25.	Pineapple
6.	Blackberry	16.	Lemon	26.	Plums
7.	Cherry	17.	Litchi	27.	Pomegranates
8.	Custard apple	18.	Lime	28.	Strawberries
9.	Dates	19.	Mandarins	29.	Sweet lime
10.	Figs	20.	Mango	30.	Water melon

3. Nutrition available in fruits

Fresh fruit is typically between 75 and 95 percent water, a fact that helps to explain the refreshing character of the food. In general, fruits are acidic with pH ranging from 2.5 to 4.5. The most common acids in fruits are ascorbic acid, citric acid, malic acid and tartaric acid. A variety of fruits is more likely to yield a wider intake of nutrients. Most fruits are having very excellent dietary source of vitamins A, C, E, K and B-complex group vitamins such as thiamin (B₁), riboflavin (B₂), niacin (B₃), folates (B₄), pantothenic acid (B₅) and pyridoxine (B₆). They compose antioxidant flavonoids such as β -carotene, lycopene, crypto-xanthin, lutein-zeaxanthin and polyphenolic compounds. They have excellent source of dietary fiber as well as minerals like sodium, potassium, phosphorus, iron, copper, calcium, manganese, magnesium and zinc. Fresh fruits are fairly low in calories because they contain much water and little fat. However addition of sugar to the canned and frozen fruits increases the calories considerably.

Typically, fruits are high in carbohydrates, although a large range is possible between 2 and 40% depending on the type of fruit and its maturity. Free sugars usually include fructose, glucose and sucrose. A large portion of the carbohydrates present in fruits is fiber which is not digested and passes through the digestive system. Fiber is usually made up of cellulose, hemi-cellulose and pectic substances. A small amount of starch may also be present in fruits but starches are typically converted to sugars during the ripening process. A negligible quantity of protein is found in fruits and they usually contain less than 1% fat. Fats are most typically associated with the waxy cuticle surface of the fruit skin. Exceptions to this rule are avocados and olives, the flesh of which may contain as much as 20 percent oil. Avocados like fruits are very high in omega-3 fatty acids. Nutritional values of different kinds of fruits are presented through the Table 2, 3 and 4.

Table 2: Nutritional values of fruits (Nutritive value per 100 g)

Principle	Avocado	Apple	Apricot	Bael fruit	Banana	Black berry	Cherry	Custard apple	Dates	Fig fruit
Energy (kcal)	160.0	50.0	50.0	137.0	90.0	43.0	63.0	235.0	277.0	74.0
Carbohydrates (g)	8.53	13.81	11.0	31.8	22.84	9.61	16.1	59.0	74.97	19.18
Protein (g)	2.00	0.26	1.4	1.8	1.09	1.39	1.06	5.2	1.81	0.75
Total fat (g)	14.66	0.17	0.4	0.3	0.33	0.49	0.2	0.725	0.15	0.30
Dietary fiber (g)	6.70	2.40	2.0	3.0	2.6	5.3	2.1	11.0	6.7	2.9
Vitamins or antioxidants										
Folates (μ g)	81.0	3.0	9.0		20.0	25.0	4.0	35.0	15.0	6.0
Niacin (mg)	1.738	0.091	0.6	1.10	0.665	0.646	0.154	2.2	1.61	0.40
Pantothenic acid (mg)	1.389	0.061	0.24	--	0.334	0.276	0.199	0.565	0.805	0.30
Pyridoxine (mg)	0.257	0.041	0.054	--	0.367	0.03	0.049	0.50	0.249	0.113
Riboflavin (mg)	0.130	0.026	0.04	1.19	0.073	0.0	0.033	0.283	0.06	0.05
Thiamin (mg)	0.067	0.017	0.03	0.13	0.031	0.02	0.027	0.275	0.05	0.06
Vitamin A (IU)	146.0	54.0	1926	55.0	64.0	214	640.0	15.0	149.0	142.0
Vitamin C (mg)	10.0	4.6	10.0	60.0	8.7	21.0	7.0	91.0	0.0	2.0
Vitamin E (mg)	2.07	0.18	0.0	--	0.1	1.17	0.07	0.0	0.0	0.11
Vitamin K (μ g)	21.0	2.2	3.3	--	0.5	19.8	2.1	0.0	2.7	4.7
Minerals										
Sodium (mg)	7.0	1.0	1.0	0.0	1.0	1.0	0.0	23.0	1.0	1.0
Potassium (mg)	485.0	107.0	256.0	600.0	358.0	162.0	222.0	618.0	696.0	232
Calcium (mg)	12.0	6.0	13.0	85.0	5.0	29.0	13.0	60.0	64.0	35.0
Copper (mg)	0.190	0.0	0.0	0.0	0.078	0.165	0.06	0.215	0.362	0.07
Iron (mg)	0.55	0.12	0.39	0.60	0.26	0.62	0.36	1.5	0.90	0.37
Magnesium (mg)	29.0	5.0	10.0	--	27.0	20.0	11.0	53.0	54.0	17.0
Manganese (mg)	0.142	0.0	0.077	--	0.27	0.646	0.07	0.0	0.296	0.128
Phosphorus (mg)	52.0	11.0	23.0	50.0	22.0	0.0	21.0	80.0	62.0	0.0
Zinc (mg)	0.64	0.04	0.2		0.15	0.53	0.07	0.25	0.44	0.15
Phyto-nutrients										
Carotene- α (μ g)	24.0		19.0	--	25.0	0.0	0.0	--	0.0	0.0
Carotene- β (μ g)	62.0	27.0	1094	55.0	26.0	128.0	38.0	--	89.0	85.0
Crypto-xanthin (μ g)	28.0	11.0	104.0	--	0.0	0.0	0.0	--	0.0	0.0
Lutein-zeaxanthin (μ g)	271.0	29.0	89.0	--	22.0	118.0	85.0	--	23.0	9.0

(Source: USDA National Nutrient data base)

Table 3: Nutritional values of fruits (Nutritive value per 100 g)

Principle	Gooseberry	Grapes	Guava	Jack fruit	Kiwifruit	Lemon	Litchi	Lime	Mandarin	Mango
Energy (kcal)	44.0	69.0	68.0	95.0	61.0	29.0	66.0	30.0	53.0	70.0
Carbohydrates (g)	10.18	18.0	14.3	23.5	14.66	9.32	16.53	11.0	13.34	17.0
Protein (g)	0.88	0.72	2.55	1.72	1.0	1.1	0.83	0.7	0.81	0.50
Total fat (g)	0.58	0.16	0.95	0.64	0.52	0.3	0.44	0.2	0.31	0.27
Dietary fiber (g)	4.3	0.9	5.4	1.5	3.0	2.8	1.3	2.8	1.80	1.80
Vitamins or antioxidants										
Folates (µg)	6.0	2.0	49.0	24.0	25.0	11.0	14.0	8.00	16.0	14.0
Niacin (mg)	0.3	0.188	1.084	0.92	0.341	0.1	0.603	0.20	0.376	0.584
Pantothenic acid (mg)	0.286	0.05	0.451	0.0	0.0	0.19	7.1	0.217	0.216	0.160
Pyridoxine (mg)	0.08	0.086	0.11	0.329	0.0	0.08	0.10	0.046	0.078	0.134
Riboflavin (mg)	0.03	0.07	0.04	0.055	0.025	0.02	0.065	0.02	0.036	0.057
Thiamin (mg)	0.04	0.069	0.067	0.105	0.027	0.04	0.011	0.03	0.058	0.058
Vitamin A (IU)	290.0	66.0	624.0	110.0	87.0	22.0	0.00	--	681.0	765.0
Vitamin C (mg)	27.7	10.8	228.0	13.7	92.7	53.0	71.5	29.10	26.70	27.70
Vitamin E (mg)	--	0.19	0.73	0.34	1.46	0.15	0.07	--	0.20	1.12
Vitamin K (µg)	--	14.6	2.6	0.0	40.3	0.0	0.4	--	0.00	4.20
Minerals										
Sodium (mg)	1.0	0.0	2.0	3.0	3.0	2.0	1.0	2.0	2.0	2.0
Potassium (mg)	198.0	191.0	417.0	303.0	312.0	138.0	171.0	102.0	166.0	156.0
Calcium (mg)	25.0	10.0	18.0	34.0	34.0	26.0	5.0	33.0	37.0	10.0
Copper (mg)	0.07	0.127	0.23	0.0	0.13	37.0	0.148	--	42.0	0.11
Iron (mg)	0.31	0.36	0.26	0.6	0.31	0.6	0.31	0.60	0.15	0.13
Magnesium (mg)	10.0	7.0	22.0	37.0	17.0	8.0	10.0	6.00	12.0	9.0
Manganese (mg)	0.144	0.071	0.15	0.197	0.098	0.03	0.055	--	0.039	0.027
Phosphorus (mg)	27.0	0.0	11.0	21.0	0.0	0.0	31.0	18.0	0.00	0.00
Zinc (mg)	0.12	0.07	0.23	0.42	0.14	0.06	0.07	--	0.07	0.04
Phyto-nutrients										
Carotene-α (µg)	--	1.0	0.0	0.0	0.0	1.0	0.00	--	101.0	17.0
Carotene-β (µg)	--	39.0	374.0	61.0	52.0	3.0	0.00	--	155.0	445.0
Crypto-xanthin (µg)	--	0.0	0.0	5.0	0.0	20	0.00	--	407.0	11.0
Lutein-zeaxanthin (µg)	--	72.0	0.0	157.0	122.0	11.0	0.00	--	138.0	0.00
Lycopene (µg)	--	0.00	5204	0.00	0.00	0.00	0.00	--	0.00	0.00

(Source: USDA National Nutrient data base)

Table 4: Nutritional values of fruits (Nutritive value per 100 g)

Principle	Orange	Papaya	Peaches	Pears	Pineapple	Plums	Pomegranates	Strawberry	Sweet lime	Water melon
Energy (kcal)	47.0	39.0	39.0	58.0	50.0	46.0	83.0	32.0	43.0	30.0
Carbohydrates (g)	11.75	9.81	9.54	13.81	13.52	11.42	18.70	7.70	9.30	7.60
Protein (g)	0.94	0.61	0.91	0.38	0.54	0.70	1.67	0.67	0.80	0.60
Total fat (g)	0.12	0.14	0.25	0.12	0.12	0.28	1.17	0.30	0.30	0.15
Dietary fiber (g)	2.40	1.80	1.50	3.10	1.40	1.40	4.00	2.00	12.0	0.40
Vitamins or antioxidants										
Folates (µg)	30.00	38.00	4.00	7.00	18.00	5.00	38.00	24.0	24.2	3.0
Niacin (mg)	0.282	0.338	0.806	0.157	0.50	0.417	0.293	0.386	0.30	0.178
Pantothenic acid (mg)	0.25	0.218	0.153	0.048	0.00	0.135	0.135	0.125	0.30	0.221
Pyridoxine (mg)	0.06	0.019	0.025	0.028	0.112	0.029	0.075	0.047	0.10	0.045
Riboflavin (mg)	0.04	0.032	0.031	0.025	0.018	0.026	0.053	0.022	0.00	0.00
Thiamin (mg)	0.10	0.027	0.024	0.012	0.079	0.028	0.067	0.00	0.10	0.033
Vitamin A (IU)	225.0	1094	326.0	23.0	58.00	345.0	0.00	12.0	121.0	569.0
Vitamin C (mg)	53.2	61.8	6.60	4.20	47.80	9.50	10.20	58.8	50.0	8.10
Vitamin E (mg)	0.18	0.73	0.73	0.12	0.02	0.26	0.60	0.29	0.50	0.05
Vitamin K (µg)	0.00	2.60	2.60	4.50	0.07	6.40	16.4	2.20	1.50	0.00
Minerals										
Sodium (mg)	0.00	3.00	0.00	1.00	1.00	1.00	3.00	1.00	4.80	1.00
Potassium (mg)	169.0	257.0	190.0	119.0	109.0	157.0	236.0	153.0	490.0	112.0
Calcium (mg)	40.0	24.0	6.00	9.00	13.0	6.00	10.0	16.0	40.0	7.00
Copper (mg)	39.0	0.00	0.068	0.082	0.11	0.057	0.158	0.00	0.10	42.0
Iron (mg)	0.10	0.10	0.25	0.17	0.29	0.17	0.30	0.41	0.70	0.24
Magnesium (mg)	10.0	10.0	9.00	7.0	12.0	7.00	12.0	13.0	19.4	10.0
Manganese (mg)	0.024	0.00	0.61	0.00	0.927	0.052	0.119	0.386	0.00	0.038
Phosphorus (mg)	0.00	5.00	11.0	11.0	8.00	16.0	36.0	0.00	30.0	0.00
Zinc (mg)	0.08	0.07	0.17	0.10	0.12	0.10	0.35	0.14	0.10	0.10
Phyto-nutrients										
Carotene-α (µg)	11.0	0.00	0.00	0.00	0.00	0.00	--	0.00	--	303.0

Carotene- β (μg)	71.0	276.0	162.0	12.0	35.0	190.0	--	7.00	--	0.00
Crypto-xanthin (μg)	116.0	761.0	67.0	2.0	0.00	35.0	--	0.00	--	78.0
Lutein-zeaxanthin (μg)	129.0	75.0	91.0	45.0	0.00	73.0	--	26.0	--	8.0

(Source: USDA National Nutrient data base)

4. Health benefits of different nutrients available in fruits

Dietary fiber works as a bulk laxative. It prevents LDL cholesterol absorption in the gut, helps in regulating bowel movements and helps to protect the colon mucous membrane from cancer causing chemicals. The fiber helps in supporting digestive health and reducing constipation problems. The soluble fiber can help keep blood sugar levels steady. Fiber can keep the stomach full for a longer period of time and reduce the desire or need to eat more food, assisting in weight loss. It helps in reducing blood cholesterol, obesity and diabetes.

Vitamin-C is a powerful natural antioxidant. It protects from oxidative stress and increases immune system function. It is important for growth and repair of all body tissues. It is required for collagen synthesis within the body. Collagen is the main structural protein in the human body required for maintaining integrity of blood vessels, skin, organs and bones. It increases immunity to protect against common diseases like cough, cold, flu and effective to prevent and cure anemia. It helps heal cuts and wounds, keeps teeth and gums healthy.

Vitamin-A is important for normal eye vision, proper immune system function, reproduction, and maintaining healthy skin, mucus membranes, teeth and skeletal and soft tissue. It helps to protect from lung, liver and oral cavity cancers.

Vitamin-E protects fatty acids and cell membranes from attack of free radicals which allows the body to fight the signs of ageing skin such as loss of elasticity and wrinkles. It is popular for connection between sex drive.

Vitamin-K is essential for many coagulant factors in the blood as well as in bone metabolism.

B-complex group of vitamins such as riboflavin, thiamin, niacin, pantothenic acid, folates and pyridoxine (vitamin B6) are acting as cofactors help body metabolize carbohydrates, protein and fats. These vitamins can help regulate the risk of heart disease. Folate (folic acid) helps the body form red blood cells.

Antioxidants protect the nerve cells caused by oxidative stress which ultimately prevents the risk of neurodegenerative diseases such as Parkinsonism and Alzheimer's. Polyphenolic antioxidants have been linked to reductions in heart disease. An antioxidant known as tannins possesses anti-inflammatory, anti-hemorrhagic, anti-infective properties.

Antioxidant flavonoids such as β -carotene, crypto-xanthin and lutein-zeaxanthin are able to protect cells and protect from colon, prostate, breast, endometrial, lung, liver and pancreatic cancers. Lutein reduces the risk of macular degeneration and cataracts. Detoxifying properties of flavonoids stimulate the healing process of peptic and oral ulcers.

Carotene helps to protect from lung and oral cavity cancers. Carotenoids and xanthophylls protect eyesight from aging-related damage.

Lycopene prevents skin damage from UV rays and offers protection from prostate cancer.

Iron being a component of hemoglobin inside the red blood cells, determines the oxygen-carrying capacity of the blood. Iron is required for red blood cell formation as well for cellular oxidation.

Potassium is an important component of cell and body fluids that helps regulating heart rate and blood pressure. It also reduces the risk of developing kidney stones and help to decrease bone loss.

Calcium is essential constituent of bone, teeth, muscle contraction, blood clotting and nerve impulse conduction.

Manganese is used by the body as a co-factor for the antioxidant enzyme.

Copper is required for bone metabolism as well as in production of white and red blood cells.

Magnesium is essential for bone growth and its strengthening. It has a cardiac-protective role as well.

Omega-3 and 6 fatty acids may help reduce blood cholesterol levels, maintain blood pressure and decrease risk for heart disease and attacks.

5. Health benefits of different fruits

Eating a diet rich in fruits as part of an overall healthy diet may reduce risk of many types disease. The benefits of different kind of fruits for human health are given below:

Apple

The fruit helps in reducing cholesterol levels in the body. An apple a day reduces the risk of skin diseases, improve digestion and detoxify liver. Apple cider vinegar used as beverage prevents the formation of kidney stone. Apples have been recommended for arthritis, obesity, gallbladder stones, bronchial asthma, gonorrhoea, tuberculosis, anemia, insomnia, neuritis and halitosis. It helps to beat diarrhea, constipation and neutralize irritable bowel syndrome. It helps to improve immune system, control weight, keep healthier heart, prevent cataracts and curb all sorts of cancers.

Apricot

Apricot helps to improve normal vision, proper immune system function, reproduction, and maintaining healthy skin, teeth, and skeletal and soft tissue. Apricots provide a significant source of potassium that helps in maintain proper fluid balance, aids in muscle function, regulates heartbeat, promotes healthy digestion and strong bones. Apricots contain significant amounts of both insoluble and soluble fiber which promotes healthy blood glucose and cholesterol levels. Antioxidant in the apricot acting as protective scavengers against oxygen-derived free radicals and reactive oxygen species that play a role in aging, cancers and various disease process. It helps protect the body from lung and oral cavity cancers.

Avocado

Avocado can help regulate the risk of heart disease. Soluble fiber in avocados can help keep blood sugar levels steady, aids digestion and helps maintain its regularity. High potassium level in the fruit can help keep blood pressure under control. Avocados are very high in omega-3 fatty acids, mono- and polyunsaturated fats, which may help reduce blood cholesterol levels and decrease risk for heart disease. Avocado can reduce the risk of macular degeneration and cataracts. It has powerful antioxidant associated with immune system of health. Avocados have been shown to reduce the risk of certain cancers, including cancers of the mouth, skin and prostate.

Bael fruit

Bael fruit, also known as the “Wood Apple”, is a species native to India. Famous drink known as sherbet is made from bael fruit. It has been known for its medicinal values since 2000 BC. Bael fruit helps in relief from constipation, indigestion, peptic ulcer, piles, scurvy, respiratory problems, haemorrhoids, cholera, diarrhea and dysentery. It also boosts the immune system, fights off bacterial and viral infections, reduces inflammation and various inflammatory conditions, prevent cancer. It increases milk production for nursing mothers, cures diabetes, increases ocular health. It helps to prevent various sexual dysfunctions, treat heart diseases and control cholesterol.

Banana

Banana has a beneficial role for the treatment of neuritis and anemia. It helps to decrease homocystine levels within the body and protect our body against chronic disease condition. Soluble dietary fiber helps normal bowel movements thereby reducing constipation problems. Banana helps to production of red blood cells. It helps for bone strengthening and has a cardiac-protective role as well. It helps control heart rate and blood pressure. Bananas have an antacid effect that protect against stomach ulcers.

Blackberry

The fruit has low-calorie sugar that substitute in the fiber help in steady blood sugar levels. Antioxidant compounds in the fruit have potential benefits against cancer, aging, inflammation and neurological diseases. It helps in bone metabolism as well as in production of white and red blood cells.

Cherry

Cherries have potential health effects against chronic painful episodes such as gout arthritis, fibromyalgia and sports injuries. Tart cherries help the human body to fight against cancers, aging and neurological diseases and pre-diabetes condition. Cherry fruits are very rich in stable antioxidant melatonin that can cross the blood-brain barrier easily and produces soothing effects on the brain neurons, calming down nervous system irritability, which helps relieve neurosis, insomnia and headache conditions. Anti-inflammatory property of cherries has been found effective in reducing heart-disease risk factors by scavenging action against free radicals.

Custard apple

Custard apple is a storehouse of Vitamin-C which is an antioxidant and helps in neutralizing free radicals. Vitamin-A present in the fruit is good for hair, eyes and healthy skin. The fruit plays vital role in relaxing muscles and protecting heart against diseases. It is a rich source of dietary fiber, which helps

to digestion. As it contains low fat levels, good for maintaining optimum health. The paste of the flesh fruit can be used for local application on ulcers, abscesses and boils. The fruit, in its unripe form, can be dried, crushed and used for treating diarrhea and dysentery. Custard apple serves as an expectorant, stimulant, coolant and haematinic and is even useful in treating anemia. The seeds of the fruit have insecticidal and abortifacient properties.

Dates

Fresh dates compose of easily digestible simple sugars like fructose and dextrose. The fruit is rich in dietary fiber, which prevents LDL cholesterol absorption in the gut. The fruit helps to protect the colon mucous membrane from cancer causing chemicals. The fruit possess anti-infective, anti-inflammatory and anti-hemorrhagic properties. It helps for vision and help to protect from lung and oral cavity cancers. Antioxidants in the fruit have the ability to protect cells. Protect from colon, prostate, breast, endometrial, lung, and pancreatic cancers. It helps body metabolize carbohydrates, protein, fats and bone metabolism. Dates are an excellent source of iron, being a component of hemoglobin inside the red blood cells, determines the oxygen-carrying capacity of the blood. They are excellent sources of potassium that helps to regulate heart rate and blood pressure. Calcium in the date is essential constituent of bone, teeth, muscle contraction, blood clotting and nerve impulse conduction. It helps in production of red blood cells and bone growth.

Figs

Fresh as well as dried figs fruits are an excellent source of dietary fiber, minerals, vitamins and anti-oxidants. Fig fruit is rich in dietary fiber that very effective for obesity and helps in reducing blood cholesterol. Fig fruit help scavenge harmful oxygen derived free radicals from the body and thereby protect us from cancers, diabetes, degenerative diseases and infections. It helps lower blood sugar levels and control blood-glucose levels in type-II diabetes mellitus condition. B-complex group of vitamins in the fruit functioned as co-factors for metabolism of carbohydrates, proteins, and fats. It improves red blood cell formation as well for cellular oxidation. Tryptophan in figs induces good sleep and helps get rid of sleep disorders such as insomnia. Figs have also been used to treat sexual weakness. The fruit is very helpful for treating chronic constipation and hemorrhoids cure. It helps to prevent bone thinning (osteoporosis) and helps to increase bone density. It helps to reduce the risk of prostate cancer, breast cancer and colon cancer. Potassium, Omega 3 and 6 fatty acids on fig fruit help to maintain blood pressure and coronary heart attacks. Figs can reduce fatigue, improve brain memory and prevent anemia. Figs are rich in natural benzaldehyde and anti-tumor agent thus it can kill pathogens, fungus and virus in the human body.

Gooseberry

Gooseberry known as “Amla” is among the healthiest food due to its high nutrient content. It is rich source of vitamin A, C, fiber, potassium, magnesium, calcium, iron, etc. It is effective to prevent cancer or tumor cell growth. It purifies the blood and helps for the growth of new tissues. It improves eye vision, skin health, hair health, nervous system health, liver functioning, cardiovascular health, memory and brain health. Also prevents ageing, constipation, anemia, increase immunity, protect and cure diabetes. It stimulates the isolated group of cells that secrete the hormone insulin. It helps in lowering blood glucose levels, thus improving diabetes. It

increases the production of red blood cells and in turn strengthens nails and teeth. It is found that it acts as a sedative, relaxes muscles and improves sleep. It improves our general health and makes our immune system strong. It has a calming and soothing effect on our overall health.

Grapes

Grapes are regarded in many cultures as “the queen of fruits” since centuries. Anti-oxidants and phyto-chemicals in grapes found to have an anti-allergic, anti-inflammatory, anti-microbial, as well as anti-cancer activity. Grapes play a protective role against cancers of colon and prostate, coronary heart disease, degenerative nerve disease. Grapes help in preventing dyspepsia, curing indigestion and irritation of the stomach. Recent study says, purple colored Concord grape juice helps in preventing breast cancer. Grapes are very good for eye vision and help to lower the cholesterol levels. Grapes help in reducing the acidity of uric acid and also try to eliminate the acid from the system which results in the reduction of pressure on the kidneys. Grapes helps in increasing the level of moisture in lungs thus considered to have high therapeutic value for asthma. Grapes are terribly effective in overcoming constipation. It gives protection against sunburns, rejuvenates the skin, lightens scars, cures uneven skin tone.

Guava

Guava is a tropical fruit rich in high-profile nutrients. With its unique flavor, taste, and health-promoting qualities, the fruit easily fits in the new functional foods category, often called ‘super-fruits’. Guava is low in calories and fats but contain vital vitamins, minerals, poly-phenolic and flavonoid compounds that play a pivotal role in prevention of cancers and anti-aging. The fruit contains the highest source of Vitamin-C that protects from oxidative stress and increases immune system function. Vitamin-C required for collagen synthesis that maintaining integrity of blood vessels, skin, organs and bones. It helps in maintaining healthy mucus membranes, skin and protect from lung and oral cavity cancers. Lycopene in pink guavas prevents skin damage from UV rays and offers protection from prostate cancer. Soluble dietary fiber in guava helps protect the colon mucous membrane by decreasing exposure time to toxins as well as binding to cancer-causing chemicals in the colon. Potassium in guava is an important component of cell and body fluids that helps controlling heart rate, blood pressure and copper is required for the production of red blood cells.

Jackfruit

Jackfruit provides a quick boost of energy and revitalizes the body instantly because its high amount of carbohydrate as a simple sugar likes fructose and sucrose. Its good amount of dietary fiber improves digestion and prevents constipation. The fiber helps to clean toxins from the colon and reduces the effects of toxin in the colon and protect from colon cancer. The fruit is important for blood formation. Increases immunity to protect against common diseases like cough, cold, flu and effective to prevent and cure anemia. Vitamin-A and other antioxidant increases eye vision, protect from free radicals, highly effective to prevent degeneration of the retina and protects from colon, lung and oral cavity cancer. Potassium in the fruit helps controlling heart rate, blood pressure and decreases the loss of calcium through kidney. Due to its rich calcium it proves strengthens, promotes healthy bone and prevent osteoporosis. Jackfruit proves best food to slow the

ageing process than natural and also keeps skin moisture level high and protect from skin diseases. Jackfruit has been proved beneficial to asthma patients.

Kiwi fruit

Kiwi fruit has several health promoting anti-oxidants, minerals, vitamins and dietary fiber. The fiber content helps to protect the colon mucous membrane by decreasing exposure time to toxins as well as binding to cancer-causing chemicals in the colon. It prevents constipation and other intestinal problems. The fruit is an excellent source of vitamin-C that helps the body develop resistance against infectious agents and scavenge harmful free radicals. It also has established role in Alzheimer's disease patients by limiting neuronal damage in the brain. The fruit functions as blood thinner function similar to aspirin thus it helps prevent clot formation inside the blood vessels and protect from stroke and heart-attack risk. Kiwi-fruit seeds are an excellent source of omega-3 fatty acids that reduce the risk of coronary heart disease, stroke. The fruit help regulate heart rate and blood pressure. Magnesium in the fruit is an important for bone-strengthening.

Lemon

Citric acid in lemon is a natural preservative, aids in smooth digestion and helps dissolve kidney stones. Ascorbic acid in lemon is helpful in preventing scurvy. It helps the body to protect from lung and oral cavity cancers. It helps in control heart rate, blood pressure, dizziness and nausea. Lemon has antiseptic and coagulant properties, so it can stop internal bleeding. Lemon juice with lukewarm water and honey can help reduce body weight. It assists in relieving respiratory and breathing problems and soothe from asthma attack. Diseases like cholera and malaria can be treated and acts as a blood purifier. Lemon is an aromatic and antiseptic agent and is useful in foot relaxation. Lemon is a diuretic and can treat rheumatism and arthritis. Lemon is an excellent fruit that fights against problems related to throat infections. It is commonly employed to reduce mental stress and depression.

Litchi

Litchi fruit helps to improve blood flow in organs, reduce weight and protect skin from harmful UV rays. It helps in develop resistance against infectious agents and scavenge harmful, pro-inflammatory free radicals. It helps in metabolize carbohydrates, protein and fats, control heart rate and blood pressure thus it offers protection against stroke and coronary heart diseases. Litchi has anti-cancer properties and helps to fight fatal and lethal diseases. Litchi keeps the digestion strong, maintains a clean stomach, improves appetite and cures heartburn and burning sensation in the stomach. It maintains healthy bones.

Lime

Limes and lemons are both citrus fruits rich in vitamin C. Lemons are yellow and limes are green. Lime is very well-known as a cure for scurvy, the disease which is caused from a deficiency of vitamin-C. Scurvy is characterized by frequent infections that show as normal cold symptoms, cracked lips and lip corners, ulcers on the tongue and in the mouth. It can also spot from spongy, swollen and bleeding gums. Lime juice and its natural oils are very beneficial for skin. Flavonoids and fragrant oils in lime are stimulating the digestive system and increase secretion of digestive juices, bile and acids and also stimulate the peristaltic motion. Lime juice with salt also acts as an excellent purgative without any side effects, thereby

providing relief from constipation. It helps to regulate the body's absorption of sugar into the bloodstream, reducing the occurrence of blood sugar spikes. It also helps in maintaining blood sugar levels, lower blood pressure and eliminates the presence of LDL cholesterol. Stimulate the healing process of peptic and oral ulcers. Its anti-oxidant properties protect eyes from aging and macular degeneration. Limes are great importance for cure fever and respiratory system.

Mandarin

Mandarins can lower the risk of developing liver cancer and helps to prevent breast cancer. The antioxidants present in mandarins disarm free radical and prevent cellular damage. Curbs the production of bad cholesterol in the body and promote good cholesterol. It keeps the blood flow smoothly through the arteries which keeps the blood pressure normal. It helps in maintain body weight, immune system. It improves healthy immune system and protects skin from harsh UV rays and help the skin to resist the damage caused by the sun and free radicals. Mandarins prevent spasm in the digestive and nervous system. It is a natural blood purifier that helps to flush out toxins and unwanted substances from the body. Regular intake of mandarins greatly improves the complexion and gives flawless and blemish-free skin. Mandarin oil is helpful in growing new cells and tissues thus help in healing wounds faster.

Mango

Mango is the "king of the fruits" nutritionally rich with unique flavor, fragrance, taste and health promoting qualities. Mango fruit is protecting against colon, breast, leukemia and prostate cancers. The high levels of fiber, pectin and vitamin-C help to lower serum cholesterol levels. Mangoes are helps controlling heart rate and blood pressure. Mangos clear clogged pores and eliminate pimples, improve skin shine, promotes good eyesight, prevents night blindness and dry eyes. Tartaric, malic and citric acid in the fruit help to maintain the alkali reserve of the body. Mango fruit can maintain blood sugar level and mango leaves help normalize insulin levels in the blood. Mangos are a great source of vitamin E that popular connection between sex drive. The fiber in mangos improves digestion and elimination. Mango juice can be used for remedy for heat stroke. It boosts immune system and healthy and strong.

Orange

Oranges are rich in citrus limonoids, proven to help fight a number of cancer including skin, lung, liver, breast, stomach and colon. Drinking orange juice regularly prevents kidney diseases and reduces the risk of kidney stones. Since oranges are full of soluble fiber, they are helpful in lowering cholesterol. Oranges are full of potassium, an electrolyte mineral is responsible for helping the heart function well. Oranges are full of vitamin C which protects cells by neutralizing free radicals. Free radicals cause chronic diseases, like cancer and heart disease. Oranges are full of dietary fiber which stimulates digestive juices and relieves constipation. Oranges are rich in vitamin-A which helps in prevent macular degeneration and improve eye vision. Magnesium in oranges helps maintain blood pressure and regulate high blood pressure. Oranges are full of β -carotene is a powerful antioxidant protecting the cells and protects the skin from free radicals.

Papaya

Papaya fruit is a rich source of carotenoids specially alfa and beta carotene that helps in prevent the risk of colon, prostate, lung and oral cavity cancers. Digestive enzyme known as 'papain' along with fiber which helps improves the digestive system. Papayas are good for bones as they have anti-inflammatory properties along with vitamin-C which helps in keeping various forms of arthritis. Papaya is rich in vitamin-A which helps protect eye vision from degenerating. Papaya can help regulate the flow of stress hormones in rats. Papaya is an excellent food option for diabetics as it has low-sugar content. A single papaya contains more than 200% of daily requirement of vitamin-C and great for immunity. Papaya is rich in fiber, vitamins and antioxidants which prevent cholesterol build up. It helps controlling heart rate and blood pressure countering effects of sodium. Papaya seeds are found application as anti-inflammatory, anti-parasitic, and analgesic, and used to treat stomachache and ringworm infections.

Pears

Pears have anti-oxidant and anti-carcinogen glutathione which help prevent high blood pressure and stroke. The high vitamin-C and copper content act as good anti-oxidants that protect cells from damages by free radicals. High content of pectin in pears make it very useful in helping to lower cholesterol levels. The pectin in pears is prevents constipation and has a mild laxative effect. Drinking pear juice regularly helps regulate bowel movements. Get quick and natural source of energy from pear juice due to its high amounts of fructose and glucose. Anti-oxidant nutrients in pears are critical in building up your immune system. Pear juice has an anti-inflammatory effect and helps relieve sufferers of much pain in various inflammatory conditions. Pears contain high level of boron that helps the body to retain calcium, thus prevents or retards osteoporosis. High content of folate (folic acid) prevents neural tube defects in infants. Drinking pear juice nourishes the throat and helps prevent throat problems. Dietary fiber in pear is a necessary element of a healthy diet as it helps sustain blood sugar levels and promotes regularity

Pineapple

Pineapples are a rich source of antioxidants which fight against free radicals and preventing cell damage. It helps in protect from atherosclerosis, heart diseases, arthritis, various cancers etc. Pineapples are abundant in vitamin-C that helps cure cold and cough effectively. Manganese in pineapples helps in strengthening bones and connective tissues. It helps in strengthening gums, keeping teeth healthy and strong. Beta-carotene present in pineapples empowers vision. Pineapple is known for its anti-inflammatory properties which prevent inflammation in arthritis patients and gives strength to the bones. Pineapples are effective in curing sinusitis, sore throat, gout and swellings. Antioxidants in pineapples help in fight against free radicals, preventing cancers, heart diseases, lower cholesterol level. Vitamin-C in pineapple boosts your immune system due to its strong antioxidant effect. Dietary fiber is abundantly present in pineapples which promote digestion. Higher amounts of potassium and lower amounts of sodium in pineapples help maintain normal blood pressure levels. It treats intestinal worms and relieves nausea. Eating pineapple is effective solution for acne and helps skin look younger. Natural cure for chapped lips, prevents hair loss, good for inflammatory scalp conditions.

Plums

Plums help to regulate the functioning of the digestive system and relieve constipation. It helps the body to develop resistance against infectious agents, counter inflammation and free radicals. Plums are good for eye sight and for maintaining healthy mucous membranes and skin. It helps to prevent from oral, cavity and breast cancer. Plums help to lower cholesterol levels, help in controlling heart rate, blood pressure, stroke and coronary heart disease. Iron in plum is highly required for red blood cells formation and improves blood circulation and prevents anaemia. Plums are rich in fibre and antioxidants which aid proper digestion and good metabolism. It also improves liver and gastrointestinal function. Plum also assists the body in making healthy tissues and strong immune system. Plums boosts bone health, especially of post-menopausal women. It helps to even out the skin tone and firm the skin by improving skin health and rejuvenating its appearance. It also helps to replace damaged tissue and helps to heal the wounds at faster pace. It improves skin elasticity and creates scar tissue and ligaments for quick recovery.

Pomegranates

Pomegranate fruit is one of the most popular, nutritionally rich fruit with unique flavor, taste, and health promoting characteristics. It is most powerful anti-oxidant of all fruits. It helps to lower cholesterol, cardiac risk factors, improves blood circulation and lowers blood pressure. Studies have been shown to promote reversal of atherosclerotic plaque in human body. It protects human being against depression and osteoporosis. It helps in smooth digestion, bowel movements, weight reduction and boosting immunity. The fruit is very effective against the development of prostate cancer, benign prostatic hyperplasia, diabetes and lymphoma. It helps in reducing heart-disease risk factors by scavenging harmful free radicals. Consumption of this fruit inhibits abnormal platelet aggregation that could cause heart attacks, strokes and embolic disease.

Watermelon

Watermelon juice is full of electrolytes and nature's gift to beat tropical summer thirst. It helps in maintaining healthy skin, hair and mucus membranes. It encourages healthy growth of new collagen and elastin cells. It helps in improve vision and immunity. It encourages a healthy digestive tract and helps in reduction of muscle soreness. It helps in reduction of hypertension and lower blood pressure in obese adults. It works as anti-inflammatory foods can help with overall immunity and general health. It protects human health against colon, prostate, breast, endometrial, lung, and pancreatic cancers.

6. Conclusion

For leading healthy life, the United States Department of Health and Human services recommended the following food nutrition and dietary guidelines. Limit the intake of saturated fat, cholesterol, added sugars, salt and alcohol. Balance calories from food and beverages for calories expended. Engage in regular physical activity for at least 30-60 minutes, five days a week. Consume upto 9 servings and more varieties of fresh fruits and vegetables per day. Consume at least half of the daily grains as whole grains. Consume three cups per day of low fat-milk or milk products. Consume less than 10% of calories as saturated fat, less than 300 mg per day of cholesterol, and as little trans-fatty acids as possible. Consume plenty of fruits, vegetables, and whole grains that are rich in

fiber. Use little added sugars or sweeteners. Use alcohol sensibly and in moderation.

7. Reference

1. Aravind G, Bhowmik D, Duraivel S, Harish G. Traditional and medicinal uses of *Carica papaya*. Journal of Medicinal Plants Studies 2013; 1(1):7-15.
2. Basu A, Rhone M, Lyons T. Berries: emerging impact on cardiovascular health. Nutrition Review 2010; 68:168-77.
3. Dauchet L, Amouyel P, Hercberg S, Dallongeville J. Fruit and vegetable consumption and risk of coronary heart disease: a meta-analysis of cohort studies. Journal of Nutrition 2006; 136:2588-93.
4. Dohadwala MM, Vita JA. Grapes and cardiovascular disease. Journal of Nutrition 2009; 139: S1788-93.
5. <https://authority.nutrition.com/12-proven-benefits-of-avocado>. 15 July, 2015.
6. <https://ndb.nal.usda.gov/ndb/search/list>. 18 March, 2015.
7. Hyson DA. A comprehensive review of apples and apple components and their relationship to human health. Advances in Nutrition 2011; 2:408-20.
8. Hyson DA. A comprehensive review of apples and apple components and their relationship to human health. Advances in Nutrition 2011; 2:408-20.
9. Riboli E, Horel T. Epidemiologic evidence of the protective effect of fruit and vegetables on cancer risk. American Journal of Clinical Nutrition 2003; 78(3):S559-69.
10. Sampathkumar KP, Bhowmik D, Duraivel S, Umadevi M. Traditional and Medicinal Uses of Banana. Journal of Pharmacognosy and Phytochemistry. 2012; 1(3):51-63.
11. Slavin JL, Lloyd B. Health Benefits of Fruits and Vegetables. Advances in Nutrition 2012; 3:506-516. doi:10.3945/an.112.002154.
12. USDA (United States Department of Agriculture) National Nutrient Database for Standard Reference.
13. www.nutrition-and-you.com/apple-fruit.html. 10 April, 2015.
14. www.nutrition-and-you.com/fruit-nutrition.html. 25 March, 2015.