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Review Article

An Review On Comparative Study Of Fresh Fruit Vs Dry Fruit

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ABSTRACT

Its fruits are natural resources found in the environment and developing. The fruit parts are maintained in the human diet. In most of plants, early fruit development is divided into three phases. This review articles are an overview as a comparative study of fresh and dry fruits, consumable products and uses are also studied. Its phytochemical constituents of fresh and dry fruit range from Protein (5.96 g), Carbohydrate (72.17 g), Vitamin C (600 mg), and Moisture content (88.82 %). The sugar content in the dry fruits was higher than the fresh fruits.

INTRODUCTION

NATURAL SOURCE:

Resources are found in environment and developing without the intervention of human.

Ex: Water, Plants, Animals.

FRUITS:

Fruit has always been a part of the human diet and is an important nutritional source. The fruit term is used for a ripened ovule. A fruit is a mature ovary of a plant, containing seeds, typically sweet and fleshy. It contains high amount water content (70-

85 %) and relatively high amount of carbohydrates, minerals, but low content of fat (less than 0.5 %) and proteins have (<3.5 %). The PH value ranging from 7.0 to slightly acidic and exhibit a characteristic high-water activity. Fruits are mostly liked food by the consumer in all over the world.

DEVELOPMENT OF FRUITS:

The most of plants, early fruit development can be divided into three phases.

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- First phases are fruit development is ovary development, fertilization and fruit set.
- Second phase are fruit development is cell division, seed formulation, early embryo development.
- Third phase are fruit development is cell expansion and embryo maturation.

PARTS OF FRUITS:

Fruits are generally classified into three type they are, Epicarp, Mesocarp and Endocarp fruit. Together, all three are known as pericarp.

CLASSIFICATION OF FRUITS:

They are classified into,

TROPICAL:

They are grown in tropics and they cannot grow in slight chilling temperature and require warm climate for fruiting. E.g. Guava.

SUB TROPICAL:

Subtropics fruits are grown in sub tropics. They require warm and mild temperature. E.g. Pomegranate.

TEMPERATURE FRUIT:

These are mainly grown in region of cold and winter. E.g. Plum. They further classified into dehiscent and indehiscent.

FRESH FRUITS:

A seed associated fleshy structures of plants typically are sweet, sour and edible in the raw state. E.g. Apple, strawberry, grapes, etc..., Fresh fruits are natural and unprocessed form of fruits which can be consumed immediately after harvesting.

DRY FRUITS:

Fruits from which the majority of original water content has been removed either naturally through sun drying or through the use of specialized dryers or dehydrators. E.g. cashew nut, dates. Dry fruits are the sources of dietary fibers with 3.7 to 9.7 g /100 gm. Dry fruits are delicious and nutrition snacks.

ADVANTAGE AND DISADVANTAGE OF FRESH VS DRY FRUITS:

- Fresh fruit contains high water content and provide optimal hydration.
- However, dried fruits offer at the longer shelf-life.
- Dry also concentrated sugar content present in the fruit.
- The disadvantage of fresh fruits has shorter shelf-life.

NUTRIENT COMPARISON OF FRESH AND DRY FRUITS:

Fresh fruit contain higher level of oxidant including vitamin C and various phytoconsistuent known for protective and immune boosting properties. Dry fruits can loss certain vitamins, minerals and nutrients content during drying process.

VITAMINS:

In general, dried fruits tends to have higher level of certain vitamins compared to fresh fruit. For E.g. Dried apricots are rich in Vitamin A, while fresh orange is a great source of Vitamin C.

FIBERS:

Due to the removal of water during the drying process, the fiber content in dried fruits tends to be high amount in compared to fresh fruit. For E.g. Dried apricots can provide up to 3 g of fiber, while the same size of fresh apricots of around 1.5 g of fiber.

HYDRATION:

Fresh fruits are known for its high-water content, which contribute to its juiciness and hydrating properties. Dried fruits on other hand goes to a dehydration process that removes most of its water content.

SUGAR CONTENT:

The drying process naturally concentrate the sugar in fruit, making dried fruit a higher source of sugar compared to fresh fruit. For E.g. Dried fruits such as raisins, dates and apricots provide sweet and flavorful sugar cravings. Fresh fruits like apples, orange and berries are naturally low in sugar content.



OVERVIEW

APPLE:

The biological source of apple has *Malus domestica*, belonging to Rosaceous family. The consumable product of fresh fruit-raw fruit, juice, dessert and vinegar. Dry fruit- chips, beverage, flavors in shampoo, soap and jam. In fresh apple contain antioxidant property, keep health digestion and maintain weight management. In dry fruit maintaining freshness of skin and improve memory power.

APRICOT:

The biological source of Apricot has *Prunus armenica*, belonging to Rosaceous family. The consumable product of Fresh fruit-raw fruit, juice, salad, wine. Dry fruit-Flavors in soap, jam, skin cream and ice cream. In fresh fruit support our skin glow, helps to fight against cancer, it improves our eye sight. In dry fruit reduce the cholesterol level and improve our digestion.

AMLA:

The biological source of Amla has *Embolia officinalis*, belonging to Phyllathaceae family. The consumable product of Fresh fruit-raw fruit, juice, murabba, chutney, burfi and laddu. Dry fruit-pickle, flavors in candy, shampoo and also medicines in dry. In fresh fruit prevent hair loss and skin glow. In dry fruit promoting digestion and regulate blood sugar level.

AVACADO:

The biological source of Avocado has *Persea americana*, belonging to Lauraceae family. The consumable product of Fresh fruit- rawfruit, salad, toast, juice and beverage. In Dry fruit -powder, flavors in soap, shampoo, creams, chocolate and paste. In fresh fruit promote our gut health and detoxifies the body. In dry fruit improve our heart health and contains powerful antioxidants.

BANANA:

The biological source of Banana has *Musa Linnaeus*, belonging to Musaceae family. The consumable product of Fresh fruit- raw fruit,

protein shake, salad. In Dry fruit-powder, flavors in conditioner, under eye cream, face wash. In dry fruit helps to immune booster and helps to insomnia patient. In fresh fruit improve our blood sugar level and may support our digestive health.

BLUEBERRY:

The biological source of Blueberry has *Vaccinum angustifolium*, belonging to Eriaceae family. The consumable product of Fresh fruit- raw fruit, juice, wine. In Dry fruit-tea powder, flavors in syrup, face wash, ice cream and also capsule In fresh fruit provides anti-inflammatory action and enhancing immunity power. In dry fruit protect gastric ulcer and helps to Alzheimer patient.

CASHEW NUT:

The biological source of Cashew nut has *Anacardium occidentale L*, belonging to Anacardiaceae family. The consumable product of Fresh fruit- raw fruit, juice and cashew milk. In Dry fruit-flavors in hair oil and ice cream. In fresh fruit helps diabetes, cholesterol and helps to skin problem In dry fruit helps to bone health, boost immune system and enhance the mood swings.

DATES:

The biological source of Dates has *Phoenix dactylifera*, belonging to Arecaceae family. The consumable product of Fresh fruit- raw fruit, juice, vinegar. In Dry fruit- dry dates. In fresh fruit improve our health, keeps blood sugar level and reduce our risk factor of diabetes. In dry fruit improve our bone health, energy boost system and helps to anemia.

FIG:

The biological source of Fig has *Ficus carica*, belonging to Moraceae Family. The consumableproduct of Fresh fruit- raw fruit, smoothie, vinegar. In Dry fruit- fig seed oil, body butter, moisturizer. In fresh fruit improve digestion, helps to manage the fat in blood and kill the cancer cell.



In dry fruit prevent constipation and improve productive health.

GRAPES:

The biological source of Grapes has *Vitis vinifera*, belonging to Vitaceae family. The consumable product of Fresh fruit- raw fruit, juice, wine, vinegar. In Dry fruit- flavors in ice cream, face wash. In fresh fruit helps your immune system and protect against heart diseases. In dry fruit fight against anemia and reducing high blood pressure.

GOJIBERRIES:

The biological source of Goji berries has *Lycium barbarum*, belonging to Solanaceae family. The consumable product of Fresh fruit-raw fruit, juice. In Dry fruit- powder, flavors in lotion, face wash and face serum. In fresh fruit improve our hair growth, promote fertility and good for liver health. In dry fruit boost immune system, promote healthy skin and stabilize the blood sugar.

INDIAN JUJUBE:

The biological source of Indian jujube has *Ziziphus mauritiana*, belonging to Rhamnaceae family. The consumable product of Fresh fruit-raw fruit, wine, juice. In Dry fruit-powder, candy, flavors in tea, face wash. In fresh fruit boost our immunity, used to treat Hyperglycemia and helps to anxiety In dry fruit improve digestion, enhanced the sleeps and detoxifies the blood.

INDIAN MULBERRY:

The biological source of Indian mulberry has *Morinda citrifolia*, belonging to Rubiaceae family. The consumable product of Fresh fruit- raw fruit, juice, jam. In Dry fruit- powder, flavors in face mask, face wash, sun screen and also syrup. In fresh fruit helps to gastric ulcer, helps to arthritis and muscle pain. In dry fruit helps to reduce blood pressure and helps to diabetic patient.

KIWI:

The biological source of kiwi has *Actinidia deliciosa*, belonging to Actinidiaceae family. The consumable product of Fresh fruit- raw fruit, salad, dessert, juice, jam. In Dry fruit- powder, flavors in

soap, serum, moisturizer In fresh fruit helps to asthma, may support our immune function and diabetes friendly fruit. In dry fruit boost immune system and improve your vision.

LITCHE:

The biological source of Lithe has *Litchi chinensis*, belonging to Sapindaceae family. The consumable product of Fresh fruit-raw fruit, ice cream roll, jam. In Dry fruit-flavors in food, lip balm, oil.

In fresh fruit reduce the stress level, weight loss and nervous system.

In dry fruit helps to immune support, helps to digestion.

MANGO:

The biological source of Mango has *Mangifera indica*, belonging to Anacardiaceae family. The consumable product of Fresh fruit- raw fruit, smoothie, juice, ice cream, vinegar. In Dry fruit- mango seed oil, powder, seed butter. In fresh fruit improve our skin health, helps to constipation. In dry fruit lower the bad cholesterol level, support digestion and gut.

PINEAPPLE:

The biological source of Pineapple has *Ananas comosus*, belonging to Bromeliaceae family. The consumable product of Fresh fruit- raw fruit, juice, salad, vinegar, beverage. In Dry fruit syrup, powder, flavors in face wash, oil.

In fresh fruit may reduce the cancer, Immunity booster. In dry fruit helps to reduce heart diseases, helps to reduce cancer risk.

PAPAYA:

The biological source of papaya has *Carica papaya*, belonging to Caricaceae family. The consumable product of Fresh fruit- raw fruit, desert, pudding, halva, salad. In Dry fruit-dried papaya (tutee fruity) flavors in face wash

In fresh fruit contain anticancer property, promote skin whitening and boost our immune system. In dry fruit helps to weight loss, provide improve our vision, strengthen of cellular function.



STRAWBERRY:

The biological source of strawberry has *Fragaria ananassa*, belonging to Rosaceous family. The consumable product of fresh fruit-raw fruit, smoothie, juice, ice cream, jam. In Dry fruit flavors in face wash, lip balm, soap, shower gel.

In fresh fruit improve skin tone, boost brain power and protect heart health. In dry fruit provide antioxidant, cure intestinal disease.

WALNUT:

The biological source of walnut has *Juglans regia*, belonging to Juglandaceae family. The consumable product of Fresh fruit-raw fruit, juice, salad. In dry fruit-walnut powder, crumbles.

In fresh fruit promote healthy gut, decreases inflammation and support weight management. In dry fruit improve our bone health, boost our metabolism and provide weight loss.

COMPARITIVE STUDY:

S.NO	Fruits	Phytochemical consistuent in fresh fruits	Phytochemical consistuent in dry fruits
1.	Apple	Phenolic content-232 mg DPPH-330 mg	Phenolic content-916 mg DPPH-875 mg
2.	Avocado	Phenolic content-2.97 µg DPPH 5.856 % Flavonoid-9.13 µg	Phenolic content-5.35 µg DPPH-3.615 % Flavonoid-2.46 µg
3.	Amla	Protein-0.95 % Antioxidant-81.425 % Vitamin c-533 %	Protein-0.88 % Antioxidant-77.75 % Vitamin c-27.25 %
4.	Apricot	Fructos-0.218 % Glucose-0.384 % Sucrose-0.284 % Maltose- 0.017 %	Fructose-0.410 % Glucose-1.229 % Sucrose-0.290 % Maltose-0.024 %
5.	Banana	Protein-0.78 g Vitamin C-13 mg Dietary fiber-2.4g Iron-0.52 mg	Protein-3.3 g Vitamin C-5 mg Dietary fiber-6.6g Iron-0.8 mg
6.	Blueberry	Anthocyanin-7.2 mg DPPH-0.0110 %	Anthocyanin-4.3 mg DPPH-0.0103 %
7.	Cashew nut	Protein-17.2 g Oil-6.4 % Carbohydrate-29.8 g	Protein-17.5 g Oil-46.4 % Carbohydrate-31.0 g
8.	Dates	Protein-2.0 g Carbohydrate-52.6 g Calcium-7.8 mg	Protein-2.7 g Carbohydrate-86.2 g Calcium-14 mg
9.	Fig	Poly phenols-192 mg Flavanoids-82 mg Protein-0.85 % Vitamin A-161.03 IU	Poly phenols-36 mg Flavonoids-40 mg Protein-3.3 % Vitamin A-142 IU
10.	Grapes	Fructose-0.8795 % Glucose-0.703 %	Fructose-1.374 % Glucose-1.38 %
11.	Goji berries	Protein-2.5 g Carbohydrate-15.3 g Fat-1.1 % Calcium-26.6 mg	Protein-10.2 g Carbohydrate-61.3 g Fat-4.4 % Calcium-101.3 mg
12.	Indian jujube	Phenolic content-141.67 µg Antioxidant-647.29 µm Vitamin C-28.37 mg	Phenolic content-234.72 µg Antioxidant-116.76 µm Vitamin C-49.29 mg
13.	Indian mulberry	Protein-25 % Ascorbic acid-400 mg Riboflavin-47.12 mg	Protein-11.3 % Ascorbic acid-150 mg Riboflavin-27.2 mg



14.	Kiwi	Protein-1.14 g Vitamin C-90 mg Carbohydrate-14.66 g	Protein-5.96 g Vitamin C-193.90 mg Carbohydrate-72.17 g
15.	Litchi	Chlorogenic acid-3.703 g Phloridzin-1.036 g Quercetin-5.805 g	Chlorogenic acid-1.134 g Phloridzin-0.203 g Quercetin-1.305 g
16.	Mango	Protein-94.2 g Fat-67.36 g Vitamin C-93.84 mg Fiber-22.70 g	Protein-167.07 g Fat-60.40 g Vitamin C-105.78 mg Fiber-24.15 g
17.	Pineapple	Moisture content-85.5 % Antioxidant -0.2 mg Ethanol -5.16 %	Moisture content-5.43 % Antioxidant-0.8 mg Ethanol-24.67 %
18.	Papaya	Vitamin C-53.84 mg Carotenoids-36.38 µg Moisture content-88.82 %	Vitamin C-322.61 mg Carotenoids-219.46 µg Moisture content-23.42 %
19.	Strawberry	Vitamin C-500 mg Polyphenol-27 g DPPH-82 %	Vitamin C-300 mg Polyphenol-18 g DPPH-80 %
20.	Walnuts	Protein-16 % Fat-40 % Carbohydrate-5 %	Protein-19 % Fat-51.5 % Carbohydrate-23 %

CONCLUSION

In the present study we determined phytoconstituent of 20 types of fresh and dry fruits respectively that are commonly consumed in India. Dried fruits are nutritionally equivalent fresh fruit in smaller severing sizes. They have unique combination of protein (167.07 g), sugar-glucose (1.389 %), iron (0.8 mg), fiber (24.15 g), flavonoids (40 mg), vitamin-C (322.6 mg), antioxidant (116.76%). Interestingly, dried fruits had apple, apricot, cashew nut, dates, grapes, goji berry, Indian jujube, kiwi, mango, pineapple, papaya, walnut have higher phytoconstituent than fresh fruits. Fresh fruits had avacado, amla, banana, blueberry, fig, Indian jujube, Indian mulberry, litchi, mango, papaya, strawberry, have phytoconstituent like phenolic content (232mg), DPPH (330mg), polyphenols (192 mg), anthocyanins (7.2 mg) higher than dry fruits. So current study is helpful for long time storage and then easy to low cost, reduced packing cost and prevent microbial decay.

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