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Medicinal Significance of Malus Pumila [A Review]

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Abstract
Natural has gifted us many plants which play a great role in our life or play a role to cure diseases. Plants are used as a medicine from ancient time. People have observed the effect of food items on human health and it takes periods and decades to understand the link between fruits and vegetable. M.pumila is one of those plants which are used to cure diseases. It has been proved that the diet containing fruits and vegetables reduce the risk of different diseases, such as cardiovascular disease and cancer. Because fruits and vegetables contain Phytochemicals which play a key role in reducing chronic disease risk. These phytochemicals include phenolics, flavonoids and carotenoids. One of the main sources of these phytochemicals is M.pumila. They are consumed at greater scale and it has been observed by epidemiological studies that the consumption of apples with reduced risk of some cancers, cardiovascular disease, asthma, and diabetes. It is a sweet, non-poisonous fruit produced by the apple tree. It is used to cure many diseases like cancer, weight management and bone health etc. Laboratory research has been found that M.pumila has very strong antioxidant action. It contains different phytochemicals like chlorogenic acid, phloridzin and catechin. Through laboratory research and experiments, it has been found that apples have been found to have very strong antioxidant action, slow down cancer cell creation, reduce lipid corrosion, and lesser cholesterol. M.pumila has a variety of phytochemicals which include quercetin, catechin, phloridzin and chlorogenic acid. These phytochemicals are powerful antioxidants. Different variety of apples has different phytochemicals which may be in different proportion. This change in amount depends on many factors like maturation and ripening of the fruit. 30% of all cancer can be prevented through using a healthy diet This review summarizes that M.pumila may decrease the risks of life by different mechanisms.

Keywords: M.pumila; Cancer; Fruit; Antioxidant; Cardiovascular disease; Phytochemicals

Introduction

Allah Almighty has gifted us a beautiful world, a world full of resources. God has gifted man with an intellect due to which he can think and he is different from other creatures. Man continuously struggling to live in this world and they explore the world and used the resources for their betterment. With the passage of time man has observed that to cure diseases plants are useful and the plants can be used to cure diseases (Nicholi 2003). So, they start many experiments and practices to check which plants are useful for which type of disease. Plants are used from ancient time and in past plants were used to cure disease. In our childhood, we were told that eating a vegetable is a healthy habit and it is a saying that an apple a day keeps the doctor away. Both these sayings are verified by the science (Nicholi 2003).

In most developing countries, cardiovascular disease and cancer are leading diseases which cause death. It has been observed that these both are linked with the lifestyle of people and can be controlled by a healthy diet. Diet and lifestyle of people can influence high cholesterol and obesity. By understanding the effects of diet on these diseases we can mitigate and prevent these diseases (Boyer and Liu, 2004).

Many phytochemicals have been identified in food like fruits and vegetables. Apple is a very significant basis of phytochemicals. In the US and Europe 22% of phenolics consumed from fruits. Apples, onions, tea are the main sources (Malaterre et al., 2018).

Many cultures enjoy apples and they are a good basis of antioxidant. Compared to other consumption of fruit apples are the rich resources of antioxidant activities and rank at second. It is also a second for phenolics compound (Malaterre et al., 2018).

M.pumila is one of those plant used to cure diseases. It is sweet, and it is not Poisson fruit produced by an apple tree. It is cultivated worldwide. The apple tree is small which has alternate simple and sieve-like leaves. Their flowers are pink and white. Their fruits are fleshy, green, yellow or red. It belongs to a family of Rosaceae. Its edible part is its fruit i.e. apple but remove the seeds. It can be harvested in those areas which have not been treated with pesticides (Sinclair 1998).

There are more than 7,500 cultivars of apple and these are easily grown from seeds. This tree is a tree of sheet expires, generally from 6 to 15 years. When grown, the size, shape and density of the branch are determined by the method of selection and clipping rootstock. The leaves are it so arranged alternately in ovals of dark green with saw-toothed. Apples contain a variety of phytochemicals, including quercetin, catechin, phloridzin and chlorogenic acid, all of which are powerful antioxidants. Different variety of apples has different phytochemicals which may be in different proportion. This change in amount depends on many factors like maturation and ripening of the fruit. Its proportion also changed from peel to seed.

Components of apples

Fats are low and carbohydrates are high in apples. It has fructose as the major sugar. They are also a wealthy cause of vitamins, minerals, fibres and polyphenols.

Apple fibres

Apples contain 2-3 % fibres. They have bundles of fibres which are soluble as well as insoluble, together with cellulose and hemicellulose, with pectin as the main soluble fibre. Research has been shown that apple pectin has cholesterol-lowering properties and its good effect on glucose metabolism.

Apple polyphenols

The phenolics compounds in apple are not distributed equally in fruit tissue. Even with a small portion of apple peel and it has 60-80% fruit weight apple peel contain a high amount of phenolics compound.

phytochemicals

M.pumila has a greater amount of phytochemicals and rich in the number of flavonoids. The concentrations of chemicals depend on many factors such as cultivar, harvest, collection, and dealing out of the M.pumila. Their concentrations also change between the peels and the flesh of M.pumila.

Ripening of apple

Phytochemicals in M.pumila depends on many factors, in which ripening of fruit is one of those factors. The period in which the fruit is ripening, the conditions, the availability of light and water play a role in the enrichment of the phytochemicals in M.pumila.

Growth condition

The varieties of apple different factors also affect the number of phytochemicals in fruit. For example, The environment should be warm for the growth of the plant. It has been observed that light exposure for apples is important and helpful in increasing production of certain phytochemicals. On the other side, some phytochemicals like phloridzin, catechins, and chlorogenic acid exposure of sunlight are not important, as it does not affect such phytochemicals.

Plant nutrition

Plant nutrition has also impact on phytochemicals. The result of different nutrients on flavonoids and chlorogenic acid in apples has also been observed. Observed the effect of fertilizers on phytochemicals and concluded that usage of different Nitrogen fertilization decreases the level of phytochemicals. It also decreases the percentage of colour in the fruit peels. On the other side Elstar apples, calcium fertilization have a positive impact on the phytochemicals like anthocyanins and total flavonoids. So, different nutrients have a different impact on different verities of apples. This impact may be positive or negative depends on both nutrients and type of fruit.

Propagation of M.pumila

M.pumila is one of the main fruit grown all over the world. There are numerous cultivators of this tree. There are many ways of propagation of M.pumila. The main methods of propagation are budding, grafting, layering and dwarfing clonally rootstocks.

Grafting

In grafting the farmers join two pieces of living plant tissues which are differently genetics to grow a new plant. It has two parts i.e. rootstock which is the lower part and scion which is the upper part. The rootstock is responsible for generating the root system and scion is responsible for the shoot system of a new plant. In this method, a short piece of the desired tree was placed on the limb of the rootstock.

Budding

In budding, a bud and small piece of bark are used. It is a type of grafting. The rootstock must be slipping i.e. it can be easily separated from the wood because the plant is actively growing when the bark is slipping.

Layering

In this method, the soil is mounded around shoots that have been slashing back, thus inspiring roots to grow at the base of the shoots to make a new plant.

Health Benefits of M.pumila

M.pumila has a great effect on human health. It helps to decrease the risk of cardiovascular disease and maintain human health. It helps us to remain healthy and fit by providing basic nutrients to our body. Following are the major health benefits of M.pumila.

Cancer

Research has shown that eating M.pumila lessen the danger of cancer especially lungs cancer. Both man and females have lessened the danger of lung cancer by taking M.pumila in Hawaii. In the professional nurse, health research has been taken which involve over 77,000 peoples. They observed fruit and vegetable intake was associated with lungs cancer and can be reduced 21% in women, but this involvement was not seen in men cancer death can be prevented by the improvement of diet for an example increase use of fruit, vegetable and complete grain. Women can decrease the danger of lung cancer by in taking at least one portion per day of M.pumila and pears but such a relationship was not observed in men (Gerhauser 2008).

Cardiovascular disease

With apple consumption, the risk of cardiovascular disease can be reduced. The relationship between cardiovascular disease and Flavonide is observed by Women health study through a survey of 40000 women, as 35% of risk has been reduced by the consumption of flavonoids**.** The intake of M.pumila has a great effect and strongly related to the minimization of mortality from heart diseases in men. Eating contributes to approximately 10% of the total ingested Flavonide and linked with a reduced risk of death from coronary heart disease in men, decreased risk of cardiovascular disease has a positive relationship with apple usage. The Women's Health Study examined the relationship between flavonoids and cardiovascular disease by surveying about 40,000 women who are 6.9-year follow-up. According to their survey, they conclude that 35% danger of cardiovascular events has been decreased by the women who ingesting the highest amount of flavonoids (Chai et al 2012).

Asthma and pulmonary function

Consumption and asthma of M.pumila are harmfully related but certainly linked with pulmonary health. A present study in Australia has shown that apple and pear are beneficial for asthma and other bronchial problems, but it was also observed that other food and vegetables are not beneficial for the treatment.

M.pumila has a good influence on asthma. Flavonoids, quercetin, hesperetin, and naringenin decrease the effects of asthma. Contrary to fruits and vegetables like onions, grapefruit, white cabbage, and juices are not fruitful for asthma.

Diabetes and weight loss

M.pumila has high fibres and water which may reduce the risk of diabetes. Besides other benefits, M.pumila reduces the lower risk of diabetes and help in weight loss. Apple consumption has a greater impact on diabetes and it has been proved by surveys and research. Quercetin which is a major component of apple peel is related to the decrease in diabetes. Myricetin and berries are also beneficial for diabetes but onion, oranges, grapefruits and white cabbage are useless to decrease the risk of diabetes (Khamchan et al., 2018).

Based on research work apple may treat different diseases like cancer, cardiovascular disease, diabetes and weight loss asthma etc. Lungs function and increased weight loss are certainly linked with Apple consumption and it is shown that asthma and apple consumption are inversely related and positively associated with pulmonary health. So, apples are one of the most consistently linked fruit with reducing the risk of cardiovascular diseases compared to other fruits and vegetables (Khamchan et al., 2018).

Those who intake fruits and vegetables in their diet are having low risk and remain healthy as compared to the persons who don't intake fruits and vegetables. Apple consumption has a greater impact on human health.

Conclusions

Fruits and apples are useful for human health and play a significant role in reducing the danger of life. They reduce the risk of dangerous diseases like cardiovascular diseases, cancer and asthma. M.pumila has strong antioxidant actions which can reduce cancer cell production, decrease lipid corrosion and help to control cholesterol level. They have a major role in dropping the danger of unceasing diseases. M.pumila contains a large number of phytochemicals, which are tough antioxidants and establish anticancer actions. New research has shown that apples do contain phytochemicals but more work is desirable to improve appreciate the bioavailability of phytochemicals within the apple medium as different to clean phytochemicals.

Many factors influence the amount and proportion of phytochemicals in M.pumila. It is very important to know about it to take more benefits from M.pumila. The concentrations of phytochemicals differ and vary across the world. It depends on the weather, the conditions available to the fruit, the nutrition, the ripening and developing stage of the fruit e.t.c. The stage of some phytochemicals varies throughout the maturation of the fruits in reaction to available light, the step of fruit progress and to some types of fertilization. But storage of apples does not affect deeply apple phytochemicals, but the method of making juice results in a very significantly reduce in phenolics.

The possible health payback of apples is many. Usage of fruits and vegetables like apples is very beneficial and considered as part of a strong diet. It may help in reducing life risks by mitigating the effects of dangerous diseases and the preservation of good health.

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