Pomegranate *Punica granatum* L. Punicaceae

The origin and distribution:

The pomegranate belongs to the family Punicaceae (*Punica granatum* L.) is one of the most desirable fruits in tropical and subtropical areas. The pomegranate was originally described throughout the Mediterranean region.

Pomegranate is one of the oldest recognized edible fruits, produced mostly in Mediterranean countries in several subtropical countries and also commonly produced both in Iran, India, Pakistan, and Afghanistan and in sub-tropical regions of South America. India, Iran, the United States, Turkey, Syria, and Iraq are the major Pomegranate (*Punica granatum* L.) producing countries. Pomegranate is considered as a non-climate fruit without the involvement of ethylene in the preparation process.

Pomegranate native to Central Asian regions and from there it moved to the countries of the world. It is currently cultivated in many different geographical areas including the Mediterranean basin, Asia, the USA and India, and north-eastern and the south Caspian areas, north and tropical Africa, Iran, which is grown extensively in arid and semi-arid regions worldwide.

The Pomegranate (*Punica granatum* L.) is a plant of economic value widely used by humans for its nutritional and medicinal properties. It is well-adapted to the Mediterranean climate and can resist up to –10°C of cold weather in the winter.

Importance and uses:

The edible portion of raw Pomegranate is 78% water, 19% carbohydrates, 2% protein, and 1% fat. A 100 g serving of Pomegranate Sarcotesta provides 12% of the Daily Value (DV) for vitamin C, 16% DV for vitamin K, and 10% DV for vitamin B. Pomegranate seeds are a rich source of dietary fiber (20% DV) which is entirely contained in the edible seeds. And is grown for its fruit crop, and as ornamental trees and shrubs in parks and gardens.

Botanical description:

A shrub or small tree growing 5 to 10 m high, the pomegranate has multiple spiny branches and is extremely long-lived, with some species in France surviving for 200 years. Pomegranate trees are usually deciduous, but sometimes leaves may linger on the branches. The leaves are opposite or sub opposite, with the deep-green leathery and glossy, narrow, oblong - to lance-shaped, growing on short stems. entire, 3–7 cm long and 2 cm broad.

The pomegranate flower is a beautiful offspring of its tree. Known for its bright red attributes, with three to seven petals, the flowers are usually red, orange in color. They are more than 3 cm in diameter. First sign of the fruit is the crown- like protuberance at the flowers base. Some fruitless varieties are grown for the flowers alone. The point of these words its, there are some species of pomegranate don’t bearing the fruits, because all of the flowers are staminate flowers only.

Pomegranates (*Punica granatum* L.) are **monoecious plants**. Monoecious is a flowering term that means it has both male (pollen-forming) and female (ovary- and fruit-forming) reproductive organs on the same plant. The individual flowers can be perfect, meaning both male and female parts are found together in a single flower.

Pomegranate trees are **self-fruitful**, which means the flowers on the pomegranate are both male and female. Pollinating insects and honeybee assist in spreading the pollen from flower to flower.

The blooming period is relatively long for pomegranates (April–June), but **later-blooming flowers may not have time to develop into fully ripe fruit**. Fruit ripening takes around (6–7) months for most pomegranates (from blooming to harvest time).

The pomegranate (*Punica granatum* L.) is a fruit-bearing deciduous shrub in the family Punicaceae, which grows between 5 and 10 m tall. Pomegranate fruits are consumed fresh or processed, and they are considered as a healthy food because of the high content of antioxidant compounds.

As pomegranate is a **non-climacteric fruit**, not producing large amounts of ethylene during ripening, it is not expected to respond to 1-methylcyclopropene (1-MCP), an ethylene action inhibitor.

The fruit is harvested typically in season in the Northern Hemisphere from October to February, and in the Southern Hemisphere from March to May. The fruit is the size of a large orange, obscurely six-sided, with a smooth leathery skin that ranges from brownish yellow to red; within, it is divided into several chambers containing many thin transparent arils of reddish, juicy pulp, each surrounding an angular elongated seed.

Pomegranate fruit forms as a large (5-12 cm) and fleshy berry containing many arils and seeds surrounded by pulp. Pomegranate fruit is a rich source of several high-value compounds like phenols, anthocyanins and ascorbic acid that make pomegranate fruit useful in human medicine. Diabetes, dental conditions, erectile dysfunction, alzheimer's disease, male infertility, arthritis, and obesity are some of the pomegranate properties therapeutic.

In mature fruits, the juice obtained by compressing the seeds yields a sour flavor due to low pH (4.4) and high contents of polyphenols, which may cause a red indelible stain on fabrics. Primarily, the pigmentation of pomegranate juice results from the presence of anthocyanins and ellagitannins.

Climatic condition:

Mature specimens can develop with multiple trunks and a distinctive overall form. Pomegranates are drought-tolerant, and can be grown in dry areas with either a Mediterranean winter rainfall climate or in summer

rainfall climates. In wetter areas, they can be prone to root decay from fungal diseases. They can tolerate moderate frost, down to about −12 °C.

Though the pomegranate grows in a wide range of climates, good fruit is produced only where high temperatures and dry atmosphere accompany the ripening period. Deep, rather heavy loams appear to be the best soils. Seeds can readily be grown, but choice varieties are reproduced by cutting and layering. Commercial propagation is performed by taking hardwood cuttings 250–300 mm long and rooting them in the open ground.