

Pomegranate:

OLD CROP IN FASHION AGAIN

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Pomegranate is a fruit with a rich history. It is native to the Himalayas in North India and Iran, but has been cultivated and naturalized since ancient times over the entire Mediterranean region (GLOZER AND FERGUSON, 2008). It is widely cultivated in Iran, India, the more arid regions of Southeast Asia, Mediterranean countries, the East Indies, Malaysia and tropical Africa. Other production areas include China, Japan, Russia and the drier parts of California and Arizona in the United States. Currently, Iran is the world's largest producer, with over one million tonnes annual production of pomegranate fruit (Islamic Republic News Agency, 2015; The Daily Records, 2018). No reliable data are available on the exact area cultivated in the world due to a rapid increase in production and expansion. However, it was estimated that about three million tonnes of pomegranate fruit is produced in the world annually. Pomegranate is an emerging crop in South Africa, grown for both local consumption and for export. It is consumed as fresh arils, juice and other processed products.

WHAT IS SO CATCHY ABOUT POMEGRANATE PRODUCTION NOWADAYS?

Bioactive compounds and phytochemicals in pomegranates:

Phytochemicals and bioactive compounds produced by the pomegranate tree include sterols and terpenoids in the bark, leaves and seeds, alkaloids in the bark and leaves, some organic acids, flavonols, anthocyanin and anthocyanidins in the leaves, rind, fruit, bark and juice (Holland and Bar-Ya'akov, 2008). Nearly all parts of the fruit can be utilized. The edible part called arils contains juice which is mainly 85% water, approximately 10% sugars (mainly fructose and glucose), ascorbic acid, vitamins, organic acids, antioxidants, polysaccharides, polyphenols, anthocyanins and essential minerals (Roy and Waskar, 1997; Al-Maiman and Ahmad, 2002). Pomegranate has high content of polyphenols including ellagitannins and ellagic acid. During juice processing, ellagitannins are released into pomegranate juice in significant levels. Ellagitannins are hydrolyzed to ellagic acid in the gut (Turrini et al., 2015). The antioxidant activity of pomegranate juice was reported to be three times that of green tea or wine (Gil et al., 2000). The peel is a rich source of natural antioxidants and has been used in the Middle East as a colourant for textiles due to its high tannin and phenolic content (Li et al., 2006; Al-Said et al., 2009). Pomegranate seeds are rich in lipids, which are mainly polyunsaturated (n-3) fatty acids such as linoleic and linolenic acid. Other lipids such as oleic, punic and stearic acid are also present in the seeds (Ozgul-Yucel, 2005; Fadavi et al., 2006; Aindongo, 2014). Pomegranate seed oil content is about 12 - 20% of total seed weight (Aviram et al., 2000; Fadavi et al., 2006). Seeds are also a vital source of crude

fibres, pectin, and sugars (Aviram et al., 2000). Cultivar, cultivation practices as well as environmental factors under which the pomegranate tree grows, are largely responsible for the differences in the amount of chemical compounds contained in the tree and fruit (Holland and Bar-Ya'akov, 2008).

Health, pharmacological, functional and cosmetic properties:

The potential of the crop to prevent and limit disease risk in humans has led to global commercial pomegranate fruit production, consumption and research. It has tremendous health, nutritional, pharmacological, functional and cosmetic properties. In medicine, the pomegranate fruit is widely used in therapeutic formulas. Pomegranate has been in use since the ancient times to treat several diseases. In folk medicine, pomegranate was used as an antipyretic, anthelmintic and vermifuge, and to treat and cure aphthae, ulcers, diarrhoea, acidosis, dysentery, haemorrhage, microbial infections, and respiratory pathologies (Vidal et al., 2003; Larrosa et al., 2010; Lee et al., 2010; Viuda-Martos et al., 2010). In India, the pomegranate is usually mentioned as an ingredient in remedies in the ancient Ayurveda system of traditional medicine. Recent scientific findings corroborates traditional usage of the pomegranate as a medical remedy and indicate that the fruit, flowers, bark, and leaves contain bioactive phytochemicals that are antimicrobial, reduce blood pressure, and act against serious diseases such as diabetes and cancer (Holland et al., 2009). The possibility of pomegranate to control the HIV pandemic was also reported (Neurath et al., 2004). These findings have spurred a higher awareness and interest of consumers to the benefits of the

Orchard of pomegranate trees with mature fruits and below harvested pomegranate fruits.



pomegranate fruit as food and medical remedy. As consumers are becoming more aware of pomegranate as a healthy choice, more

people are choosing the fruit and its products as a delicious addition to a healthy diet.

Cosmetic pomegranate products are becoming more popular in the market. They are suitable for all skin types and in high demand especially among women. Creams, body butters, body polishes, lotions and makeup are some of the available products.

Hardiness:

Pomegranate can be cultivated where other fruit trees will not grow well due to its tolerance of adverse growing conditions such as drought and a hot and dry climate. It can grow and produce successfully in several regions and on a wide range of soils including calcareous and saline soils. Pomegranate tolerates moderate soil salinity due to the ability of its root system to accumulate the majority of toxic salts absorbed from the soil and thus prevent their transport to the above-ground organs (Levin, 2006; Marathe et al., 2009). However, salt tolerant ability is cultivar dependent. Accumulation of salts, in excess of 0.5% of the soil mass causes dying off of growing roots (Chandra et al., 2010). Effects of salt stress on plants depend on the concentration and period of exposure to salt, plant genotypes and environmental factors.

Religious and traditional myths or beliefs:

As an ancient fruit, the pomegranate and its usage are deeply embedded in human history. Its existence is woven in many religious beliefs and rituals, including its symbol of life, health, wealth,

fertility, abundance, spirituality, morality and longevity. It is also a symbol of immortality in Judaism, Christianity, Islam and Buddhism (Mahdihassan, 1984). To the Babylonians, the pomegranate seeds were regarded as an agent of resurrection, the Persians believed the seeds conferred invincibility on the battle fields. Ancient Chinese saw the seeds as a symbol of longevity and immortality (Aviram et al., 2000). It is therefore not surprising that this fruit was used for medicinal purposes throughout history seeing that many religions hailed it as a beneficial or sacred fruit.

Culinary use:

Pomegranate can be consumed fresh either as fruit or juice on its own or as fruit salad or used in the food processing industries. When processed, it is used for fruit juice, jelly, syrup, jam, paste, sweets, cream cake, citric acid, vinegar, molasses, food seasonings, flavouring and other industrial processed products such as food colourants, tannins for leather and wines (Fadavi et al., 2005; Yazici and Sahin, 2008; Mousavinejad et al., 2009; Caleb et al., 2012; Zaouay et al., 2012). It is widely used in many traditional soups, dishes and sauces and may also be used as spice. The sauce may be used as salad dressing, to marinate meat, as garnish for desserts etc.

Aesthetic value:

In some countries, pomegranate fruits are used as decoration in fruit bowls. The whole plant can also be of ornamental interest where it is planted for its aesthetic values. Many people grow pomegranates not only for their fruits but also for their flowers, thus making them suitable for landscaping and as decoration. Because of its decorative value, pomegranate is used in landscaping as an ornamental tree or allowed to form a very thick and beautiful hedge.

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