Traditions and Folks for Walnut Growing around the Silk Road

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Abstract
Persian walnut is one of the important nut crops originating from ancient Persia and traded along the Silk Road route between Asia and the Middle East. A large part of walnut orchards (cultivated and wild) in the world located in the Silk Road countries, producing more than 71% of the world walnuts production. There are many true and false beliefs about walnut growing in the Silk Road countries. Different parts of walnut trees have been used for making various instruments and furniture since long times ago. Walnut kernels have been used as a dry fruit and as well as ingredient of different delicious foods. Walnut has also a long history of therapeutic usages to treat a variety of diseases in Silk Road countries. In addition, walnuts have a long history in popular culture, customs and games in these countries.

INTRODUCTION
Asia is one of the old continents, in which civilization has first developed and where humans learned to live by cultivating plants (Vavilov, 1951). In fact, more than half of the world’s edible food crops originated in Asia (Janick, 2003). The Silk Road had an important role in dispersal, expansion and exchange of agricultural products between East and West (Janick, 2003). The Silk Road is a series of trade and cultural transmission routes that facilitate cultural interaction between West and East by linking traders, merchants, pilgrims, monks, soldiers, nomads and urban dwellers from China to the Mediterranean Sea during various periods of the time (Elisseff, 2000; Lubec et al., 1993).

The Silk Road extends from Europe through Turkey, Lebanon, Syria, Iraq, Iran, Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Pakistan, India, Nepal, Bangladesh, Burma, Bhutan until it reaches China. Also, Egypt, Somalia, Saudi Arabia, Sri-Lanka, Java-Indonesia, and Vietnam are in the maritime Silk Road (Boulnois and Loveday, 2005). There were a variety of goods traded on the ancient Silk Roads. Goods like silk, tea, ceramics, rice and woolen fabrics were transferred westwards while Chinese imported horses, spices, and fruits. During his long travel, Marco Polo recognized that the melons in one of the cities along the Silk Road (currently in Afghanistan) are the best in the world (Major et al., 2001). Fruits have played a very important role in both ancient and modern Silk Roads. In this region delicious mangoes, melons, watermelons, the sweetest grapes, and many more types of seasonal fruits are found. Moreover, this region is a large producer of dried fruits and nuts, such as figs, mulberries, walnut, dates, almonds, hazelnuts, pistachios, apricots, pine nuts, and a variety of raisins (Kriukelyte, 2012).

Walnuts (Juglans regia L.) are one of the oldest food trees known to man, dating back to 7000 BC grown in temperate regions of the world (Sharma and Sharma, 2001). Early history indicates that walnuts came from ancient Persia, where they were reserved for royalty (Vavilov, 1951). Thus, the walnut is known as the “Persian Walnut”. Caravans carried walnuts far off land and eventually through sea trade, spreading the popularity of the walnut around the world. It was distributed eastward to Pakistan, Afghanistan, India, Uzbekistan and China, and westward to Turkey and Greece; from Greece it was introduced into other parts of Europe and to America by English colonists. English
merchant marines transported the product for trade to ports around the world and they became known as “English Walnuts”. In fact, England never grew walnuts commercially (Anonymous, 2010). According to the Food and Agriculture Organization (FAO, 2011), height of the top ten walnut world producers in 2011 are countries belonging the Silk Road (Fig. 1).

MATERIALS AND METHODS
In this paper, the uses of walnut in both past and present, with the perspective of recalling the attention of science to the importance of this ancestral crop as a popular crop in the past society as well as in the current modern walnut industry, are reviewed. Modern and past uses of walnut were examined through literature and rounding information by e-mails from all over the world, on the following issues: folk and medicine, religious and spiritual, ornamental and cultural, foods, nutritional benefits, pharmacopeia, bi-products, genetic diversity, agronomical uses and processing.

RESULTS AND DISCUSSION
Persian walnut is one of the important temperate nut trees originated from Persia and traded along the Silk Road route between Asia and the Middle East (Anonymous, 2010). There are still many old trees of walnut in this region that their age is almost more than thousand years old (Fig. 2). Walnut is called ‘Gerdoo’ in Farsi, ‘Ceviz’ and ‘Koz’ in Turkey, ‘Akhrot’ in Hindi and ‘Doon’ in Kashmiri language. A large part of walnut orchards in the world is located in the Silk Road countries that show the importance of walnuts in this area (FAO, 2011). Silk Road countries are the major producers of walnut in the world (71.26%), in which large part of this production goes for home consumption. These countries (except China) have a small portion of global walnut trade. China, Iran and Turkey are the largest walnut producers in the world. About 92.41% of the total harvested area and 95.38% of walnut production in Silk Road are devoted to these three countries (Table 1 and Fig. 3). There are no available statistics for walnut production in Bangladesh, Myanmar, Saudi Arabia, Indonesia, Sri Lanka and Somalia (FAO, 2011).

There are many true and false beliefs about walnut growing in Silk Road countries. Some of these traditions and folklore include; planting walnut trees on a piece of flat rock, scattering iron shavings under a tree, using trees planted by crows, sowing a couple of nuts in a pottery container which has a hole in its bottom, no pruning or fertilizing walnut trees, beating branches with wood sticks for harvesting, sleeping under walnut trees causing dizziness, few plants growing under walnut trees, making some scars on the trunk to make kernels lighter, spreading salt under the trees to make lighter kernel color, planting walnut trees in full-moon to make the trees shorter and lateral bearing with well filled nuts; however planting during the new moon, makes it tall and produce valuable timber (Tabatabaei et al., 1992).

Walnut trees are not only used for nut and wood production but also used for erosion control in mountainous areas (Esser, 1993). Also, kernels are served in breakfasts with bread and cheese in many countries such as Iran, Turkey and China. In Iran, as one of the main origins of walnut diversity, walnut is served with other nuts and dried fruits during long nights of winter particularly the longest night of the year called “Yalda”, and sometimes in Nowruz (21 March). Also in summer, immature walnuts are harvested before hull splitting and their full kernels are extracted and maintained in glass containers containing salt water that is called “Fall e Gerdoo”. In Silk Road counties, walnut kernel has been used as an ingredient of various foods, pickles, snacks, sweets, breads, jams, cakes, chutneys, desserts, oil, candies, tea, flour, soup and grinding in yogurt (Anonymous, 2012; Puttoo, 2010; Braun, 2013). Walnut oil has been used for cooking and as a salad dressing. It was likely used in paintings of Buddha in Afghanistan and as a dry skin protectant and also blended with beeswax to use in walnut furniture. Walnut shells are used as activated charcoal (Liu et al., 2004), charcoal for barbeque, oil well drilling purposes, grinding stones and the asphalt industry.

In Silk Road countries, walnut wood is used for making musical instruments (such
as guitar, piano, baglama, tabla, flute, sitar), statues, carvings, stands, baby cradles and toys, chairs, cases for jewelry or important documents, furniture, veneers, knobs, brooches, turned bowls, lockets, fine boxes of various sizes, handles, gunstocks, butter churns, ladles, funnels, bowls, turned dishes and carved stools. In Turkey, the dowry coffer of brides is traditionally made from walnut timber. Mihrap (a niche of a mosque indication the direction of Mecca), minber or pulpit (a staircase of a mosque giving a speech), rahle or rilah (a chair on which the Holy Quran of Muslims or holy book of Hindu ‘Geeta’ is placed), preaching chairs in mosques, chests, baby cradles, doors and windows are also made from walnut timber (Yaskina, 1980; Tabatabaei et al., 1992; Bemann, 1998; Puttoo, 2010; Braun, 2013).

In some Silk Road countries, such as Afghanistan and Pakistan, walnut leaves and bark are used to brush the teeth (called as “Dandasa” in Pakistan), as an anti-septic and anti-bacterial (Braun, 2013; Sher et al., 2011). Some people use special pastes made from walnut husks to dye hairs. Traditionally walnut leaves, young fruits and husks are used in coloring of carpet and rug ropes along centuries. Some Anatolian people use leaves to mix with special body painting powder called “Kina”. Walnut leaves have been used to banish pests and diseases of pulses, wheat, lentils and other kinds of stored cereals in cellars in Anatolian villages and to control weevil and aphid in China. In many mountainous areas of Afghanistan, farmers use walnut leaves to feed sheep and goats. Some villagers use the leaves for cleaning carpets, making an ointment for burns or mixing with henna (=Kina). Also leaves are used in bathtubs to treat human body fungi.

Walnut has a long history of therapeutic usages in Silk Road countries (Moafegh Harvi, 1971). Different parts of walnut have been used to reduce cholesterol, treat gum disease, Alzheimer, stroke or traumatic damages of skull, baldness, toothache, rabies, psoriasis, dementia, diarrhea, stimulating vomiting, reducing bleeding, healing herpes and skin diseases, killing or expelling parasitic intestinal worms, tuberculosis, venereal diseases, inflammation of the membranes in the gastrointestinal tract, rickets, scrofula, colic, dandruff, dry hair, gangrene, tapeworms, open wounds, ringworm, thyroid hormones, hypothyroidism, various skin disorders such as acne, eczema, dermatitis, herpes, itching, psoriasis, hair loss, rheumatic pains, fever, diabetes, malaria, rheumatic pains, respiratory diseases, stomach cramps, liver disorders, inactivating fungi, reducing body weight, preventing formation of kidney and gall stones, strengthen the mucosa, healing varicose veins, and treating a variety of cardiac diseases including high arterial pressure and act as blood purifier (Akopov, 1981; Rahimi et al., 2008; Puttoo, 2010; Sher et al., 2011; Pei and Lu, 2011; Zaurov et al., 2013). Some people believe since walnut kernel looks like the human brain, it has beneficial effects on brain. It is believed that walnut leaves, barks, and husks have a relaxing effect. Immature whole fruits (including the pericarp) are cooked in sugar syrup to make preserves (Khodkorov, 1990).

Traditionally, old walnut trees have been given as dowers to the women in many walnut growing regions. In some parts, people consider them as a holy tree. It was also a common practice in certain regions to plant a walnut tree for a new born baby to make a source of income for his/her future family. Walnut is an important part of Hindu rituals, holy festivals and weddings in the Kashmir valley and other North Western hills of India. As part of the ritual, some of these nuts are sown in the ground for posterity sake. Mother nature is so intertwined with tradition and culture that cutting down of green walnut trees is banned in Kashmir valley.

Walnuts are also exchanged as gifts on festivals and in the New Year celebrations between communities and friends. Walnuts have been also used in some songs, poetry, stories, proverbs and metaphors in Silk Road countries (Sarvari Fakhr, 2009). The traditional games are also played with walnuts in which people try to hit nuts from a distance. In Himachal Pradesh, two districts mainly Mandi and Kullu celebrate a festival known as ‘Sair’ on 16 September every year and worship God with fresh fruits of walnut along with rice. On the occasion of ‘Sair’ or a month before, the young people play with hard shell-walnuts; the game is known as ‘Khod’.
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**Tables**

Table 1. Status of walnut trade and production in Silk Road (FAOSTAT, 2012).

<table>
<thead>
<tr>
<th>Countries</th>
<th>Area harvest (ha)</th>
<th>Production (t)</th>
<th>With shell (1000 $)</th>
<th>Shelled (1000$)</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Import value</td>
<td>Export value</td>
</tr>
<tr>
<td>Afghanistan</td>
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<td>14002</td>
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<td>190</td>
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</tr>
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<td>China</td>
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<td>154146</td>
<td>55971</td>
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<td>20000</td>
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</table>

| Share of world (%) | 63.95 | 72.183 | 36.44 | 6.88 | 7.65 | 10.61 |

- The import and export data related to 2011.
Figures

Fig. 1. Top ten walnut producers in the world (FAO, 2012).

Fig. 2. Very old walnut trees in Iran (a) and China (b).

Fig. 3. Walnut harvested area and production in the Silk Road countries.