Antiurolithiatic Effect of Family Rosaceae Plants

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Urolithiasis is a common worldwide problem with high recurrence. Rosaceae plants have great potential to treat urolithiasis.

Urolithiasis antiurolithiatic natural products drug development Rosaceae

1. Introduction

Greco-Arab and Islamic medicine, refers to medicine developed during the “Golden Age of the Arab–Islamic Empire”, which extended from Andalusia (Spain) and Maghreb states (North Africa) in the west to Central Asia and India in the east, with the central lands of Egypt, Bilad al-Sham (Greater Syria), and Iraq playing an important role. It spanned a period of roughly nine centuries, from the middle of the seventh to the end of the fifteenth century, by which time it had broken up into three distinct empires, the Ottoman, the Safavid, and the Mughal. Islamic medicine was initially built on tradition, mainly the theoretical and practical knowledge developed in Arabia, Mesopotamia, Persia, Greece, Rome, and India. The founder of the Arab–Islamic medicine is believed to have been the Holy Prophet (Peace Be Upon Him) himself . The statement of Holy Prophet (Peace Be Upon Him) that “there is no disease that Allah has created, except that He also has created its treatment” encouraged Arabs and Muslims to engage in medical research and seek out a cure for every disease known to them . Arabs and Muslims were known to have advocated the traditional medical practices of the Prophet’s time, such as those mentioned in the Quran and Hadith. Later on, Arab and Muslim scholars translated the voluminous writings of Galen and Hippocrates, as well as writings of the Indian physicians Sushruta and Charaka and the Hellenistic scholars in Alexandria, from Greek and Sanskrit into Arabic and then produced innovative medical knowledge and practice based on those texts. Urolithiasis is a common worldwide problem with high recurrence. The following contents cover the forty one (41) medicinal plants of family Rosaceae used in 14 different countries such as Australia, Bosnia Herzegovina, Canada, India, Iran, Italy, Jordan, Pakistan, Palestine, Serbia Spain, Tunisia Turkey and Uzbekistan.Their historical antiurolithiatc background shared in well-known books of Ibn Sina (05 plants), Dioscorides (03 plants), Al Razi (02 plants) and Daoud al- Antaki (01 plant). Among the plant parts fruits were noted the most common (32%) followed by flowers (16%), leaves (14%), whole plant (12%), seeds and roots (10% each) and aerial parts (06 %). In terms of preparation, decoction was observed the most common (72%), followed by infusion (20%), juices and oleo gum resin (04% each). The route of administration is oral in all cases.

2. Antiurolithiatic Effect of Family Rosaceae Plants

Table 1 shows the antiurolithiatic plants of family rosaseae.

Table 1: Antiurolithiatic plants of family rosaseae.

Plants	Explanation
Alchemilla alpina L.	Aerial parts decoction --- Spain [1].
Amygdalus communis var. *amara* L. OR *Prunus amygdalus* var. *amara* (DC.) Focke.	Dioscorides (De Materia Medica): Seeds are diuretic [2]. Al Razi / Rhazes (Al-Hawi fi al-Tibb): Seeds are litholytic and used against dysuria [2].
	Seeds --- Iran [3], Uzbekistan [4].
	Uzbekistan: 1 tbsp. of pounded seed BD along with water [4].
	Pharmacological activities: Antioxidan [5].
Prunus amygdalus var. *dulcis* (Borkh. ex DC.) Koehne.	Dioscorides (De Materia Medica): Seeds are litholytic and used against dysuria [2].
Amygdalus arabica Olivier.	Fruits --- Iran [6].
Cerasus mahaleb (L.) Miller.	Fruits --- Iran [6]; seeds infusion --- Turkey [3].
Cerasus microcarpa (C. A. Mey.) Boiss.	Fruits --- Iran [6].
Crataegus aronia Decne.	Leaves decoction --- Jordan [7]; Palestine [3]; matured fruits / flowers decoction -Turkey [8].
	Pharmacological activities: Leaves: Antioxidant, diuretic, litholytic [5].

Crataegus azarolus L.	Ibn Sina (Al Qanoon Fit Tibb): Fruits / oleo gum resin is litholytic and expels stones [2].
	Oleo gum resin --- Iran [3].
	Pharmacological activities: Antioxidant [5].
Crataegus monogyna Jacq.	Aerial parts infusion --- Bosnia, Herzegovina, Turkey [3].
	Pharmacological activities: Anti-inflammatory [5].
Crataegus pentagyna L.	Aerial parts infusion --- Bosnia, Herzegovina [3].
	Pharmacological activities: Antioxidant [5].
Cerasus avium (L.) Moench.	Flowers decoction --- Iran [9], Turkey [10].
	Turkey: 125 ml of flower decoction BD for 7 – 10 days [10].
	Pharmacological activities: Anti-inflammatory [9].
Cerasus vulgaris Mill.	Flowers decoction --- Turkey [10].
	Turkey: 125 ml of flower decoction BD for 5 – 10 days [10].
Cydonia oblonga Mill.	Dioscorides (De Materia Medica): Flowers / fruits are diuretic [2].
	Leaves decoction --- Turkey [10].
Docynia indica (Wall.) Decne.	Fruits --- India [11].

	Pharmacological activities: Lithotriptic [11].
Duchesnea indica (Andr.) Focke.	Plant decoction --- India [3].
	Pharmacological activities: Anti-inflammatory, antioxidant [5], lithotriptic [11].
	Leaves decoction --- Palestine [3].
Eriobotria japonica L.	Israel: Boil 7 to 8 leaves in one L of water. 150 ml BD for 14 days [12].
	Pharmacological activities: Analgesic, anti-inflammatory, litholytic [5].
Enhydra fluctuans Lour.	Plant decoction --- India [3].
	India: Boil 5 g plant powder in one L of water. 100 ml BD for 7 days [12].
	Pharmacological activities: Lithotriptic [11].
Filipendula vulgaris Moench.	Root decoction --- Serbia [13].
	Pharmacological activities: Lithotriptic [5].
Fragaria nilgerrensis Schltdl. ex J. Gay.	Plant decoction --- India [3].
	India: Boil 5 g of plant in one L of water with a little sugar candy. 100 ml OD till stone expulsion [12].

	Pharmacological activities: Lithotriptic [11].
Fragaria indica Andr.	Plant decoction --- India [3].
	Pharmacological activities: Lithotriptic [11].
Pirus communis L.	Fruits --- Iran [6].
Potentilla anserina L.	Whole plant decoction--- India [3].
	Pharmacological activities: Lithotriptic [11].
Potentilla reptans L.	Sina (Al Qanoon Fit Tibb): Roots are litholytic and expel stone [2].
	Roots decoction --- Iran [3].
	Ibn Sina (Al Qanoon Fit Tibb): Fruits are litholytic and expel stones [2].
Prunus avium (L.) L. OR *Prunus cerasus* L. OR *Cerasus avium* (L.) Moench.	Fruit raw eaten / Plant decoction --- Iran [3]; flowers decoction --- Iran [6], Turkey [14]; stem decoction --- Turkey [15]; fruit juice --- Palestine [16].
	Palestine: 100 ml of fresh wild cherry juice are to be given orally four times a day [16].
	Pharmacological activities: Antioxidant, diuretic, lithotriptic [5].
Prunus cerasoides Buch.-Ham. ex D.Don.	Seeds chewed --- India [17]. Antiurolithiatic spectrum (reported): Fruits against whewellite [18].

Pyrus communis L.	Ripe fruits eaten --- India [19].
	Pharmacological activities: Diuretic [5].
Rosa beggeriana Schrenk ex Fisch. & C.A.Mey.	Fruits --- Iran [9].
Rosa canina L.	Fruits / leaves / seeds infusion --- Lebanon [20]; fruits decoction or infusion --- Australia, Canada, Iran, Turkey [3][12]; flowers --- Iran [6]; leaves decoction --- Turkey [3]; leaves infusion --- Italy, Tunisia [21].
	Canada: 1 tsp. rose hips in 8 oz. hot water, cover for 60 mins then filter. 4 oz. TID till stone expulsion [12]. Iran: Infusion of 2 tsp. dried fruits in 250 ml of water. 250 ml OD till stone expulsion [12].
	Pharmacological activities: Analgesic, anti-inflammatory, antioxidant, diuretic [5], lithotriptic [22].
	Antiurolithiatic spectrum (reported): Fruits against whewellite [22].
Rosa indica L.	Flowers and buds --- Pakistan [3].
	Pharmacological activities: Analgesic [5].
Rubus caesius L.	Leaves or roots decoction or roots infusion --- Uzbekistan, Kyrgyzstan [3].
Rubus ellipticus Smith.	Fruits --- Pakistan [3].
	Pharmacological activities: Analgesic, antioxidant [5].

Rubus fruticosus L.	Ibn Sina (Al Qanoon Fit Tibb): Fruits / flower / roots are litholytic and expel stones [2].
	Fruits / flowers / roots --- Iran [3].
Rubus niveus Thunb.	Fruits / leaves / seeds --- India [11][23].
	Pharmacological activities: Lithotriptic [5].
Rubus sanctus Schreber.	Roots decoction --- Turkey [3].
	Turkey: 250 ml of roots decoction drunk on an empty stomach OD [24].
	Pharmacological activities: Analgesic, antioxidant, anti-inflammatory, litholytic [5].
Sorbus domestica L.	Leaves decoction --- Turkey [10].
	Turkey: 125 ml of leaves decoction BD for 8 – 15 days [10].
Prunus domestica L.	Daoud al-Antaki (Tadhkirat Uli l-al-Bab wa l-Jami li-L-‘Ajab al-‘Ujab): Fruit juice is litholytic [25].
Prunus mahaleb L.	Al Razi / Rhazes (Al-Hawi fi al-Tibb): Litholytic [2].
Prunus puddum Roxb. ex Wall. or *Prunus coracoides* D. Don.	Kernel --- India [3].
	India: 24 - 45 g of kernel daily [12].
Prunus virginiana L.	Ibn Sina (Al Qanoon Fit Tibb): Fruits are useful in urinary stone [2].

	Fruits --- Iran [3].
Pyracantha crenulata (Roxb. ex D.Don) M. Roem.	Fruits --- India [26].
	Pharmacological activities: Litholytic [26].

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