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GULNAR (FLOWER OF *PUNICA GRANATUM* LIN): PRECIOUS MEDICINAL HERB OF UNANI MEDICINE- AN OVERVIEW

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ABSTRACT

Plant origin drugs play very important role in the prevention and treatment of diseases and it becomes popular day by day due to its low cost and less side effect. *Unani* medicine is an oldest system of traditional medicines, in which 80% plant origin drugs are used. *Gulnar* (flower of *Punica granatum* Linn) is very important drug which has been used in *Unani* medicine since centuries for its great medicinal values. In the last few decades, many works have been done on the phytochemistry and biological activities of the drug. This review describes about the *Unani* literature of the drug, like temperament, action, uses, formulations and dose of the drug followed by modern description like taxonomic classification, macroscopic and microscopic features, phytochemical studies, chemical constituent and pharmacological action of the drug and its medicinal uses.

Keywords: *Anar*, Traditional medicine, Pomegranate, Temperament of drug, *Unani* Literature.

INTRODUCTION

Gulnar is a Persian word used for flower of *Anar* (*Punica granatum* Linn.). It is in use as medicine in various doses form among *Unani* as well as other traditional medicine practitioner throughout the world; especially among Asia-sub continent. *Gulnar* is a shrub and claimed as native of Iran and Afghanistan. But now it is being cultivated throughout the India and its neighbour countries.

Taxonomical Classification³

Kingdom: Plantae
 Sub kingdom: Tracheobionta
 Super division: Spermatophyta
 Division: Magnoliophyta
 Class: Magnoliophyta
 Subclass: Rosidae
 Order: Myrtales
 Family: Punicaceae

Its wild varieties are found abundantly along warm valleys and outer hills of the Himalayas. In *Unani* literature *Gulnar* is claimed for having astringent and haemostatic activities & also being used as remedy for diabetes. In this article authors try to sum up the medicinal claims of *Gulnar* in *Unani* literature along with few recent studies done on same drug^{1,2}

Genus: Punica
Species: *Punica granatum* Linn

Vernacular names^{2,4}

Gulnar is flower of *Anar*; both are known by different names worldwide including Indian sub continent as follows:

Roman: Carthage (Punica)
Italian: Melogranato, melogranogranato, pomogranato, pomopunico
Spanish: Granada (the fruit), granado (the plant)
French: Grenade
German: Granatapfel.
India: Dadima or dalima or dalim or Anar.
Persian: Dulim or dulima, Gulnar.
English: Pomegranate.
Hindi: Anar.
Urdu: Gulnar.
Kannda: Dalimba.
Tamil: Madalai.
Arabic: Julnar.

Habita and Geographical Distribution^{5,6}

The tree is found in Persia, Arabia, Afghanistan and Baluchistan and cultivated nearly all over India. It grows in vast tract of the hills slopes of Jammu and Kashmir and Himachal Pradesh between 900 m. and 1,800 m.

Botanical Description²

It is an attractive shrub or small tree 20-30 ft height, bark smooth grey, thin, branched less or more spiny. Leaves are evergreen or deciduous, opposite or in whorls of 5 or 6, short stem, oblong, lanceolate 3/8 to 4 inch long and leathery. Flowers are borne on the branch tips singly or as many as 5 in a cluster. Fruit 3.5- 7.5cm in diameter, globose, tipped with the calyx, rind coriaceous, woody, the interior septate with membranous walls of the carpels, each carpel containing numerous seeds, angular from mutual pressure. Seeds with a watery outer coat contain pink juicy and a horny inner coat. Flowers are 3.8-5cm long and as much across, mostly solitary, sometimes 2-4 together, terminating short shoots, sometimes apparently axillary sessile or nearly so. Calyx-tube campanulate, adnate to and produced beyond the ovary, coriaceous, lobes 5-7, valvate. Petals 5-7, obovate, scarlet, wrinkled, inserted between the

calyx lobes, Stamens are numerous, inserted on the calyx below the petals at various levels; anthers elliptic, dehiscent longitudinally, ovary inferior, many celled, the cells arranged in two concentric circles; style long, bent; stigma capitate. Carpel early coalescing and owing to unequal growth becoming arranged in 2 tiers, 3 in the lower and 5-9 in the upper

Macroscopic Features

The flowers of *Gulnar* are described as bell-shaped and red in colour. The calyx is bell shaped generally with shallow thalamus. The lobes of calyx are 5-7 in numbers, ovoid in shape and conspicuously gland-tipped. The calyx encloses a dense crumpled mass of petals. The corolla is indefinite in number, spirally arranged in the calyx cup. The petals are actually the modified stamens. The petals in the outermost whorl are longer, their size getting towards the periphery. The gynoecium is yellow in colour with three locules, the style is yellowish with pink tinge, where as the epigynous disc is absent.⁶

Microscopic Features

Microscopically, the main diagnostic characteristic of *Gulnar* powder are the presence of abundant fragments of the corollas, the outer epidermis

consisting thin walled, irregularly outlined polygonal cells with striations running through the entire length of cells. The vascular strands from the main vein of the petals consist of annular thickened vessels. The styles are mainly composed of thin walled cells. On the inner surface of many of these cells crystals of calcium oxalate are found.⁶

Description of *Gulnar* as reported in Unani Literature

The history *Anar* (Pomegranate) is mentioned among ancient fruit. The height of *Anar* tree is 15 feet. The leaves are arrow shape and upto 3 inch long. The colour of flower is light orange and some are deep red which looks very beautiful is called as *Gulnar*. Najmul Ghani, in his book *Khazainul Advia* describes that this is a flower of a tree. The tree of *Gulnar* is similar to pomegranate tree. The *Gulnar* tree produces no or very few fruits. The taste of fruit is *khat-mitha* (sweet-sour) taste. The colour of flower is red, white and sometime black. It is of two types, one is cultivated and other is wild. The wild variety is known as *Gulnar* and is medicinally more effective than cultivated variety. Especially wild variety is known as *Gulnar*⁷. Hakim IA Qasmi in his book *Kitabul Mufridat* describes that the tree is just like pomegranate tree. The shape and size of flower is large. The colour of flower is red and looks beautiful and sometime pink in colour. The taste is *afas* (astringent) and *badmaja* (unpleasant). Some people consider that, the pomegranate tree which does not give fruit, flower of that tree is known as *Gulnar*, are used medicinally.⁸ In book *Adviyae Mufrida* Hakeem Syed Saifuddin Ali has also describes it as a famous and common flower which is produced on that pomegranate tree which doesn't produce fruit.⁹ In *Moghzanul Mufradath*, Hakim Kabiruddin has mentioned that it is a bud of wild variety of pomegranate tree which are used medicinally.¹⁰

Mizaj (Temperament)^{6,7,8,9}

Cold 1⁰ dry 2⁰, Cold 2⁰ dry 2⁰, Cold 3⁰ dry 3⁰

ACTION AND USE

Pharmacological action^{6,7,8,9}

Qabiz (Astringent), *Mujafif* (Siccative), *Habis-e-dam* (Haemostyptic), *Rade* (Derivative), *Muqawi sanoon wa lissa* (Tonic for tooth and gum), *Muqawi aza raisa* (Tonic for vital organs), *Mudamil* (Cicatrizant), *Qatil-e-didan am'a* (Anthelmintic)

Therapeutic Uses^{6,7,8,9}

In *Unani* System of Medicine, *Gulnar* is used as a medicine in various forms like decoction, powder, syrup, infusion, nasal drop, gargle, pessery etc. for different ailments. These flowers possess different pharmacological activities and hence being used as astringent, haemostatic, antihelminthic, stomachic, desiccant, Cicatizant etc.

Gastro-intestinal tract

Gulnar possess astringent property hence it is used in diarrhoea, dysentery especially in bleeding type and peptic ulcer. It is also used in the treatment of intestinal worm infestation. Unripe flowers are dried and pounded to make a snuff which is considered to be the best astringent; its internal use is very effective for infantile diarrhoea and dysentery.⁵ The flowers are styptic to the gums; check vomiting; useful in biliousness.¹¹

Respiratory System

Flower buds powdered and given in doses of 4 to 5 grains are useful in bronchitis.⁵

Urogenital system

Due to its siccative property its passery is used in leucorrhoea, uterine and rectal ulcer and haemorrhages.⁵

Special Indication

Haemostyptic activity

Gulnar also has haemostyptic action. So it is used to control the internal bleeding, epistaxis, bleeding dysentery, haematemesis, bleeding gum and menorrhagia. Decoction of *Gulnar* is used as gargle in disease of oral cavity and bleeding gum. The *Gulnar* is used in compound powder, composed of dried *Gulnar*, Gum acacia, Dragon's blood (*Sanguin dracoins*), and Opium. This

formulation is useful in haematuria, haemorrhoidal flux, haemoptysis etc.⁵

Wound healing activity

Due to its derivative effect it is used in inflammation and its cicatizent property it is used in the treatment of ulcer for wound healing. *Gulnar* also possess astringent property due to this property it is used in peptic ulcer.⁵

Murakabat (Compound formulations).^{7,8,9,12, 13}

There are many more compound formulations having *Gulnar* as an important gradient, being used unanimously by *Unani* physicians; few of them are mentioned as follows:

Sharbat Habbis, Qurs Kharoba, Majoon Busd, Qurs Gulnar, Qurs Tabasheer, Sharbate Anar, Jawarise Anarain etc.

SCIENTIFIC STUDIES

Biochemical Constituents

Over the past decade, significant progress has been made in establishing the pharmacological mechanisms of pomegranate flower and the individual constituents responsible its action. The Pomegranate flower contains gallic acid, ursolic acid, triterpenoids, including maslinic and asiatic acid.¹¹

Phytochemical Studies⁶

- The flowers of *Punica granatum* contained a pigment pelagonidin 3, 5-diglucoside.
- The petroleum ether and chloroform extracts of *P.granatum* flowers have also yielded sitosterol and ursolic acid apart from maslinic acid, asiatic acid and sitosterol- β -D-glucoside as the minor components.
- The alcoholic extract gave D-manitol, allagic acid and gallic acid.
- The fruit rind yield ellagic acid.
- *Punica granatum* (Lucknow sample) have been reported to contain flouride (0.2-03ppm), calcium (11.3), magnesium (3.6), phosphate (70.9), and vitamin c (3.8) content mg percent
- Examination of *P. granatum* sample from Delhi, revealed the presence of malvidin

pentose glycoside in the seeds, and mixture of pentose glycoside of which the major fraction was malvidin derivative (along with pentunidin as minor components) in the rind.

Pharmacological report

- Jafri *et al* reported that oral administration of aqueous-ethanolic (50%, v:v) extract of *Punica granatum* Linn flower has significantly lower the blood glucose level in normal, glucose-fed hyperglycaemic and alloxan-induced diabetic rats¹.
- Manoharan *et al* claims that oral administration of *Punica granatum* flower extract (400mg/kg b.w.) to diabetic animals significantly reduced the level of blood glucose and increased the level of plasma insulin as well as revert the disturbed activities of carbohydrate metabolizing enzymes to near normal pattern.¹⁴
- Dhawan *et al* reported analgesic activity of hydro alcoholic extract of aerial parts of pomegranate in mice at a dose of 0.125 mg/kg.¹⁵
- In another study it was found that; oral administration of *Punica granatum* Lin. peel extract in normal and streptozotocin induced diabetic rats shows a significant decrease the post prandial hyperglycemia.¹⁶
- Hung *et al* reported that the oral administration of Pomegranate flower extract at the dose of 500 mg/kg improves cardiac lipid metabolism in diabetic rat mode.¹⁷
- In an another study topical application of pomegranate preparations found effective for controlling oral inflammation, as well as bacterial and fungal counts in periodontal disease and Candida-associated denture stomatitis.¹⁸
- The oral administration of pomegranate flower extract at a dose of 500 mg/kg diminishes cardiac fibrosis in Zucker diabetic fatty rats.¹⁹
- Xu *et al* found that the oral administration of pomegranate flower extract at the dose of 500 mg/kg to the Zucker diabetic fatty rats for 6

weeks, ameliorates diabetes and obesity-associated fatty liver.²⁰

- Ahangarpour *et al* claims the antispasmodic effect of aqueous and hydroalcoholic extracts of *Punica granatum* flower on the uterus of non-pregnant rats. These results support the clinical efficacy and use of *Punica granatum* flower in the treatment of dysmenorrhoea and other uterine spasmodic disorder.²¹
- *Gulnar* as an important ingredients of compound formulation namely “Qurs Tabasheer” shows hypoglycaemic effect in streptozotocin induced Diabetes in animal model.¹³

CONCLUSION

As per *Unani* literature, *Gulnar* is effective in a wide variety of disease, such as diarrhoea, dysentery, peptic ulcer, worm infestation, epistaxis, bronchitis, wound healing, leucorrhoea, passive haemorrhages, uterine, rectal ulcer and many more but only few studies done on modern parameter to support the above claimed. The *Gulnar* contains various ingredients like gallic acid, ursolic acid, triterpenoids, maslinic and asiatic acid which may be responsible for its medicinal values but more specific research yet to come to support the claim made by *Unani* literature.

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