



Gulqand: A Nutraceutical from Sugared Petals

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Abstract

Edible flowers have traditionally been used in various foods and beverages. Besides their usage in culinary arts for flavor and garnish, they are known as nutraceuticals because of having phytochemicals and biological properties. Based on Traditional Persian Medicine, *Gulqand* is a two-ingredient dosage form containing one type of edible petal mixed with sugar. The most famous *Gulqand* is prepared with *Rosa damascena* flowers. In current study, keyword of *Gulqand* was searched in three medieval Persian manuscripts. Different formulations, preparation method, temperament, effects, multi-ingredient formulations which contain *Gulqand*, and their applications were extracted. Most of side effects which can be controlled by *R. damascena Gulqand* was gastrointestinal or relevant to central nervous system like flatus and headache. *Golqands*, the traditional nutraceutical from sugared petals, are potentials for further research and new products.

Keywords: *Gulqand*; Edible flower; Nutraceutical; Traditional persian medicine

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Introduction

Edible flowers have traditionally been used in various foods and beverages. Besides their usage in culinary arts for flavor and garnish, they are known as nutraceuticals because of having phytochemicals and biological properties. These flowers belong to 97 families, 100 genera, and 180 species. Some of them are chrysanthemum, lilac, mint, nasturtium, pansy, and tulip [1,2]. Edible petals contain carbohydrates, proteins, fat, sugars like fructose, glucose, and sucrose, organic acids such as malic acid, oxalic acid, citric acid, and fumaric acid [3]. Antioxidant, anti-inflammatory, and anti-microbial properties of some edible flowers have been reported [4,5].

Chinese, Indian and Middle Eastern cultures had vast knowledge about health benefits of edible flowers [2]. Furthermore, they had a wide usage in formulations of Traditional Persian Medicine (TPM). *Gulqand* (*Golghand* or *Gulkand*) has been a two-ingredient dosage form containing one type of edible petal mixed with sugar [6]. The most famous *Gulqand* in TPM is prepared with *Rosa damascena* flowers. Each type of *Gulqand* has its own effects based on characteristics of petals applied. Specific side effects of some materia medica can be controlled by *Gulqand* of *R. damascena*, therefore it can be used as a modifier [7]. This formulation is currently used as a common nutraceutical in Pakistan and India [8-10]. This article deals with introduction of two-ingredient formulation of *Gulqand* as a traditional nutraceutical in Iran.

Method

Keyword of *Gulqand* was searched in three medieval Persian manuscripts including *Qarabadin Salehi* (1766), *Makhzan-al-advieh* (1772), and *Qarabadin Kabir* (1781). Preparation method, temperament, effects, multi-ingredient formulations which contain *Gulqand*, and their applications were extracted. Different types of *Gulqand* were found in *Makhzan-al-advieh* and *Hamdard Pharmacopeia* of Eastern Medicine. Materia medica whose side effects are controlled by *Rosa damascena Gulqand* was found in *Makhzan al-advieh*.

Results

Gulqand has been a two-ingredient formulation containing one part of edible petal mixed with one or two parts of sugar, but the proportion of 1:1 is strongly suggested. *R. damascena Gulqand* is the most common compound of this group in TPM. Its temperament is warm in 2nd degree and wet in the 1st degree. Due to lack of honey, in comparison with *Gulangebin* (edible petals in honey), *Gulqand* is more suitable for young people or warm temperament patients [6,11]. *R. damascena Gulqand* is prescribed 25-50 g daily. Furthermore, *Gulqand* can be used as a base of syrups when it is added to water. To prepare *Gulqand*, fresh petals should be separated from the rest of flower. After letting them get withered for two days, they are thoroughly rubbed and mixed with sugar. It is stored in a glass jar for one week when the final product gets ready [10]. Figure 1 illustrate six steps of *Gulqand* preparation.

Table 1 presents six types of *Gulqand* contain-

ing different edible flowers. *Gulqands* have relevant effects to petals applied in them. *R. damascena Gulqand* is suggested as a modifier that minimizes side effects of some materia medica like seed of *Physalis alkekengi* and fruit of *Ziziphus jujuba*. They are presented in table 2 in

detail. Despite of being a compound, *Gulqand* can be itself one part of other multi-ingredient formulations. Seven compounds which contain *Gulqand* as a main ingredient have been introduced in table 3.

Figures 1. Six-step preparation process of *R. damascena Gulqand*



Table 1. Various types of *Gulqand* and their effects [7,10]

Edible flower		*Effects **Suitable for
1	<i>Chrysanthemum coronarium</i> L.	* Exhilarant, cardiac tonic
2	<i>Malus pumila</i> Mill.	** Impuissance, impotence
3	<i>Rosa canina</i> L.	* Exhilarant, ct heart tonic
4	<i>Rosa damascena</i> Herrm.	* Laxative, liver tonic, stomachic
5	<i>Viola odorata</i> L.	** Gastritis, pleurisy, pneumonia
6	<i>Zataria multiflora</i> Boiss.	** Ct diseases, detoxification

ct: cold temperament

Table 2. Materia medica and their side effect which can be modified by *Rosa damascena Gulqand* [7]

Scientific name (used part)	Trad. name	*Side effect(s)** Disadvantageous for
<i>Brassica rapa</i> L. (s)	Shaljam	* Flatus, headache in wt
<i>Cicer arietinum</i> L. (s)	Hemmes	* Flatus
<i>Cinnamomum camphora</i> (L.) J.Prest. (ex)	Kafour	* Insomnia, hair graying, ageing, anorexia
<i>Cucumis melo</i> L. (fr)	Bettikh	** Ct stomach, ct
Fish	Samak	** Ct, wt, ct & wt stomach, wt brain
<i>Hordeum vulgare</i> L. (s)	Shaeir	* Flatus ** wt stomach
<i>Malus pumila</i> Mill. (fr)	Tofah	** Thorax
<i>Ornithogalum narbonense</i> L. (s)	Ashras	** Stomach
<i>Physalis alkekengi</i> L. (s)	Kakanj	* Stupefacient
<i>Prunus domestica</i> L. (fr)	Ejas	** Stomach
Rice vinegar	Kanji	** Ct, stomach
<i>Rosa gallica</i> L. (fl)	Dalik	* Cough
<i>Vitis vinifera</i> L. (un.fr)	Hesrem	* Thirst ** stomach
<i>Ziziphus jujuba</i> Mill. (fr)	Sedr	** Brain in ct

ct: cold temperament, ex: exudate, fl: flower, fr: fruit, s: seed, trad: traditional, un: unripe, wt: wet temperament

Table 3. Multi-ingredient formulations which contain *Rosa damascena Gulqand* as a main ingredient [7]

Formulation: ingredients (used part)		*Effect **Disorder
1	<i>R. damascena Gulqand</i> <i>Cuscuta epithimum</i> (L.) L.(wp)	** Nightmare
2	<i>R. damascena Gulqand</i> <i>Pimpinella anisum</i> L. (fr)	** Melancholia
3	<i>R. damascena Gulqand</i> <i>Viola odorata</i> L. (fl)	** Fever
4	<i>R. damascena Gulqand</i> <i>Foeniculum vulgare</i> Mill.(fr)	* Expel phlegm * Stomachic
5	<i>R. damascena Gulqand</i> <i>Pistacia lentiscus</i> L. (r)	* Laxative
6	<i>R. damascena Gulqand</i> <i>Pimpinella anisum</i> L. (s) <i>Pistacia lentiscus</i> L. (r)	* Stomachic ** Ct encephalitis ** Phlegmatic deep sleep
7	<i>R. damascena Gulqand</i> <i>Tamarindus indica</i> L. (fr) <i>Ziziphus jujuba</i> Mill. (fr)	** Vertigo

ct: cold temperament, fl: flower, fr: fruit, r: resin, s: seed, wp: whole plant

Discussion

Six formulations of *Gulqand* using different edible petals had been mentioned in *Makhzan-al-advieh* and *Hamdard Pharmacopeia of Eastern Medicine*. More or less, the indications of *Gulqands* refer to the effects of petals. For instance, flowers of *Viola odorata* has shown lung tissue protecting and antitussive properties in both animal and clinical studies [12]. Similarly, viola *Gulqand* was suggested for pleurisy and pneumonia.

The most practiced *Gulqand* in TPM is prepared with *R. damascena* flower. This formulation is prescribed as a laxative, liver tonic, stomachic, and a modifier for numerous side effects caused by some natural products such as insomnia due to *Cinnamomum camphora* and headache by *Brassica rapa* [7, 13]. A complete list of these natural products and relevant side effects is presented in table 2. Most of side effects which can be controlled by *R. damascena Gulqand* is gastrointestinal or relevant to central nervous system like flatus and headache. According to table 3, *R. damascena Gulqand* is used as an ingredient to strengthen the effects of other ingredients. Provided that it is used with *Viola odorata* flower, the whole formulation has a stronger effect on fever. When seeds of *Foeniculum vulgare* are added to *R. damascena Gulqand*, the whole formulation acts as a stomachic. Nutritional value of edible flowers is known from ancient times. Some examples are flowers of *Ixora chinensis*, *Sesbania grandiflora*, and *Cassia siamea*. Furthermore, they were used for diarrhea, nausea, or stomachache [14].

Anthocyanidins, the colorants in some petals, have potential health benefits like preventing cardiovascular diseases, cancer, diabetes, and microbial infections [15]. Therefore, *Golqands*, the traditional nutraceutical with petals and sugar, are potentials for further research and new products.

Conflict of Interests

None.

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References

- [1] Shi J, Gong J, Liu J, Wu X, Zhang Y. Antioxidant capacity of extract from edible flowers of *Prunus mume* in China and its active components, *LWT- Food Sci Technol* 2009;42:477-482.
- [2] Fernandes L, Casal S, Pereira JA, Saraiva JA, Ramalhosa E. Edible flowers: A review of the nutritional, antioxidant, antimicrobial properties and effects on human health, *J Food Compost Anal* 2017;60:38-50.
- [3] Pires T, Dias MI, Barros L, Ferreira I. Nutritional and chemical characterization of edible petals and corresponding infusions: Valorization as new food ingredients, *Food Chem* 2017;220:337-343.
- [4] Mlcek J, Rop O. Fresh edible flowers of ornamental plants - A new source of nutraceutical foods. *Trends Food Sci Tech* 2011;22:561-569.
- [5] Koike A, Barreira J, Barros L, Santos-Buelga C, Villavicencio A, Ferreira I. Edible flowers of *Viola tricolor* L. as a new functional food: Antioxidant activity, individual phenolics and effects of gamma and electron-beam irradiation, *Food Chem* 2015;179:6-14.
- [6] Ghaeni Heravi SM. Qarabadin Salehi. Rewritten by Badr p, Mohagheghzadeh A, Shams Ardakani MR. 1st ed. Choogan Press. Tehran 2013.
- [7] Aghili Khorasani MH. *Makhzan-al-Advieh*, rewritten by Shams Ardakani MR, Rahimi R, Farjadmand F. 1st ed. In-

- stitute for Study of Medical History, Islamic and Complementary Medicine. Tehran 2014.
- [8] Khan J, Khan R, Qureshi RA. Ethnobotanical study of commonly used weeds of district Bannu, Khyber Pakhtunkhwa (Pakistan). *J Med Plant Stud* 2013;1:1-6.
- [9] Bahadur A. Ethnomedicinal study of Merbazghaz Jahangir Abad, Mardan, Khayber Pukhtoonkhwa, Pakistan. *Int J Pharm Res Dev* 2012;4:129-131.
- [10] Hamdard Pharmacopoeia of Eastern Medicine. 1st ed. Institute for Study of Medical History, Islamic and Complementary Medicine. 2003.
- [11] Aghili Shirazi MH. Qarabadin-e Kabir, 1772 AD, Edition Litograph. 1855.
- [12] Qasemzadeh MJ, Sharifi H, Hamedanian M, Gharehbe-glou M, Heydari M, Sardari M. The effect of *Viola odorata* flower syrup on the cough of children with asthma: a double-blind, randomized controlled trial. *J Evid Based Complement Alternat Med* 2015;20:287-291.
- [13] Hatefi A, Sadeghi T, Emtiazy M. Comparing the effect of golghand and psyllium on constipation among the elderly: a randomized clinical trial. *J Med Plant* 2018;17:25-34.
- [14] Kaisoon O, Konczak I, Siriamornpun S. Potential health enhancing properties of edible flowers from Thailand. *Food Res Intern* 2012;46:563-571.
- [15] Khoo HE, Azlan A, Tang ST, Lim SM. Anthocyanidins and anthocyanins: colored pigments as food, pharmaceutical ingredients, and the potential health benefits. *Food Nutr Res* 2017; 61:1-21