



## Therapeutic and Health Benefits of Rose Fixed Oil (Rowghan-E-Gol)

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### Abstract

Rose oil (Rowghan-E-Gol) is valuable fixed oil from macerating or boiling *Rosa damascena* petals in olive or sesame oils. There is difference between the rose oil and rose essential oil. The aim of this study was to evaluate the therapeutic applications of rose oil in modern and traditional medicines. The information of this article was extracted from books (traditional and modern ones) and electronic resources. The results showed that there are four methods for extracting the rose oil, but macerating the fresh rose petals in sesame oil is resulted to higher quality oil. Traditionally, rose oil is used orally or topically in management of ailments with pain and inflammatory conditions such as hemorrhoid, inflammatory bowel disease (IBD), earache, gastro-esophageal reflux diseases. In modern medicine, there are two clinical trials (topical oil) and one case report study (oral oil), which confirmed the efficacy of rose oil in backache of pregnancy, migraine headache and gastritis. Therefore, evaluating the potential of rose oil in treatment of hemorrhoid, IBD and gastrointestinal tract diseases should be performed in large clinical studies.

**Keywords:** Rowghan-E-Gol; Rose oil; Migraine headache; *Rosa damascena*

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### Introduction

*Rosa damascena* flowers with Persian name of Gol-E-Mohammadi are known as the king

of flowers and are the symbol of beauty, purity, faith and love. Rose essential oil, rose water, rose concrete, rose absolute, rose hips and

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dried flowers are the commercial products of *R. damascena* in the world [1]. Another important compound with low reputation is rose oil or “Rowghan-E-Gol”. The rose oil’s extraction method and its chemical profiles are different from rose essential oil. Rose essential oil is extracted mostly by distillation method, although due to rose essential oil’s low yield and extraction’s high expenses, the other methods are investigating. Phenyl ethyl alcohol, citronellol, and geraniol are the main components of rose essential oil [2-4]. The antibacterial activity [5, 6], anticancer [7], antioxidant effects [8] of *R. damascena* essential oil was confirmed in experimental studies, but the efficacy of rose essential oil is limited to aromatherapy [9], because of essential oil’s low yield [10] and its high price. Therefore, rose oil can be substituted instead of rose essential oil in clinics. The majority of review articles [1,11,12] have been focused on *R. damascena* flowers and its pharmacological effects without any attention to rose oil. This review article has been focused on the rose oil or “Rowghan-E-Gol”.

The information of this article was extracted from books (traditional and modern ones) and electronic resources (PubMed, Wiley, Science Direct, Springer, Google Scholar) with the key words of rose oil, Rowghan-E-Gol, clinical trial, biological activity. Twenty-eight references were evaluated for preparing this manuscript.

### **Preparation of rose oil for therapeutic and medicinal purposes**

In Iranian Traditional medicine, rose oil is prepared from garden rose petals (Gol-e-Sorkh-e-bostani) by four different methods. In the first method, after removing the rosehips, the fresh rose petals are poured in olive or sesame oils under the sunlight until whitening the petals, Then, they are pressed and the mud are thrown away. Fresh petals are poured in oil, again and this procedure is repeated for seven times.

In the second method, the same weight of fresh petals and olive oil or sesame oil are mixed and boiled on heater for long time, and then is filtered.

In the third method, the dried rose petals are boiled in water, and the filtrate of boiling is mixed with sesame oil and boiled on the heater until complete water omission and producing pure oil.

In forth method, the fresh well stubbed or grind-ed petals are squeezed to extract the liquid. After mixing the liquid with the sesame oil, the mixture is boiled until producing pure oil.

Investigation on quality of rose extracted oil showed macerating rose petals in sesame oil under sunlight is resulted to higher content of phenolic compounds, flavonoids and volatile compounds rather than boiling rose petal juice in sesame oil with higher rancidity indices [13]. Macerating the rose petal in sesame oil under sunlight for seven continuous times is not feasible in industries, due to microbial contaminations; therefore, finding the new methods for preparing the high quality oil is an essential need for different industries.

### **Rose oil in traditional medicines**

Rose oil is regarded as “morakab-ol-gova” compound with moderate nature. It is believed that oral dose of rose oil (20-30 g) is dissolvent, astringent and purgative. It can be used for opening duct obstructions due to purgative effects of slim materials and stopping the biliary diarrhea. It has calmative effects on stomach inflammation, intestinal ulcers, and cramps. The application of rose oil in oral cavity calms the teeth pain. Pouring the rose oil in ear has calming effects on earache and headache. Applying the rose oil alone or in combination with vinegar is used topically for treatment of headache, insomnia, reinforcement, sweating and cold phlegmatic stomach inflammations [14]. Rubbing the rose oil, several times in a day and warming the area,

treat the pain, inflammation, and injured organ. Applying the oil on the injured area along with eating the oil cures the pain and arthritis [15,16]. Rose oil is used for treatment of infantile colitis. Therefore, the baby is placed in the mother's arms and the oil is massaged on the spinal cord [17]. Applying the rose oil on the forehead is used for migraine. Pouring the boiled rose oil in vinegar in the ear calm the earache [18]. Rose oil is prescribed for treatment of Sahaj ul-Am'a (inflammatory bowel diseases or IBD) and Zahir (proctitis), wounds injuries, burnings, headache and insomnia [19,20].

Therefore, the traditional practitioners believed that rose oil has analgesic and anti-inflammatory effects, In this regard, two products are present in market according to traditional uses of rose oil, including the topical rose oil for treatment of hemorrhoids, earache, tinnitus and oral rose oil as soft capsule 1000 mg for management of IBD, gastro-esophageal reflux diseases and inflammation of stomach. The topical oil is recommended to apply twice or three times on the skin. The daily dose of oral soft capsule is 1-2 capsules, three times a day. Rose oil soft capsule 1000 mg is standardized on the base of 0.033 mg citronellol and 0.4 mg total phenolic compounds; rose oil is containing 3.3 mg citronellol in each 100 g of product.

### **Current application of rose oil in modern medicine**

There are some clinical studies on rose oil in modern medicine. In this section, we evaluated these clinical studies.

The efficacy of topical rose oil on pregnancy related low back pain was evaluated in a randomized controlled clinical trial in comparison with carrier almond oil as placebo, and no intervention. This oil was standardized on the base of citronellol (25.1%), geraniol (23.5%) and nerol (10.3%). 114 women with uncomplicated pregnancies in the ages of 18-35 years old and in 12-

33 gestational weeks of pregnancy completed the study. There were no significant differences between two groups in regard of demographic characteristics. The patients received seven drops of rose oil (n = 37) or almond oil (n = 38) on the painful part of back, twice for 4 weeks. 39 patients in control group had no intervention. For evaluation the efficacy of treatment, visual analogue score (VAS) and Roland-Morris Disability Questionnaires (RMDQ) score was evaluated in three groups. A significant reduction in VAS and RMDQ was observed in rose oil and almond oil groups after treatments, while an increase in these scores were observed in no intervention (control) group. There was no significant difference between RMDQ scores between rose oil and almond oil groups (p = 0.864). In spite of mild allergic rhinitis, any adverse effects were observed during the treatment with almond or rose oils [21].

The second double blind placebo cross over clinical trials was performed on 40 patients with migraine headache (18-65 years old). The patients were randomly divided in two groups and the first group was recommended to apply 2 ml of drug on forehead in the first 2 attacks of their migraine headache and after the one-week washout period, the patients substituted the drug with other ones (placebo) and vice versa. The patients can use their own analgesic drugs during the study, if they needed. The VAS and adverse effects of treatment were recorded during the study. Rose oil was prepared in sesame oil and was containing oleic acid (43.1%), linoleic acid (39.7%), palmitic acid (9.1%), stearic acid (5.7%),  $\alpha$ -linolenic acid, (0.29%), and  $\gamma$ -linolenic acid (0.13%), citronellol (3.48%) and geraniol (1.23%). From 40 patients, 29 patients completed the study. The rose oil had significant effects on VAS score of migraine headache intensity without any local or systemic adverse effects. Evaluating the efficacy of treatment on the hot type or cold type

headaches showed that rose oil had the better efficacy on hot type of migraine headache. The patients with clinical symptoms of red eyes, aggravation by pulsatility, light and hot temperament odors or hot sensation in face are categorized as hot type migraine headache [22]. In one clinical case report study, co-administration of omeprazole and daily dose of 3 g rose oil soft capsule for three weeks was evaluated by monitoring changes in clinical signs of gastritis in 5 patients. The results of clinical study showed consumption of rose oils soft-capsules ameliorate neatly all symptoms of gastritis, especially abdominal pain and belching and increased the efficacy of omeprazole [23].

### **Proposed mechanism of action for rose oil**

Rose oil with sesamol, quercetin and geraniol have therapeutic effects against IBS in mice animal model like sulfasalazine [24]. Sesame oil as one ingredient of rose oil is confirmed to have inhibitory effects against inflammation, acidic mucins and fibrosis. It increases the healing process of inflamed colon, and ameliorates the acute colitis in rats by reduction of acute colitis activity index (ACAI), colon thickness, lesion extension and diarrhea. Treatment of animals with sesame oil increases the number of mast cells, decreases the acidic mucins and CD68+ cells and inhibits collagen and laminin deposition, fibrosis and the expression of acidic mucins and o-acetylated sialic acid side chains [25]. Quercetin as the other main flavonoid in rose oil inhibits the inflammation, ulceration, and diarrhea. It also reduces disease activity indices [26]. The inhibitory effect of geraniol in rose oil has been confirmed on IBD. Geraniol reduces the pro-inflammatory cytokines (TNF- $\alpha$ , IL-1 $\beta$ , IL-6), the activity of myeloperoxidase enzyme in colon tissue, cyclooxygenase-2, inducible NO synthetase (iNOS), lipid peroxidase and nitrates from colon, and increases glutathione and

superoxide dismutase which improves the fecal consistency, and decreases the disease indices activity [27]. The antioxidant, anti-inflammatory and immuno-modulatory effects of geraniol improve the clinical symptoms of colitis such as weight loss, colon edema, and spinal/colonel mass indices. Geraniol decreases the levels of caspase 3, intercellular adhesion molecule 1 and myeloperoxidase enzymes; also it inhibits the colon content of prostaglandin E<sub>2</sub>, and interleukin 1 $\beta$ . An inhibition in expression of P38MAPK, NF- $\kappa$ B, GSK-3 $\beta$ , and  $\beta$ -catenin and increase in PPAR $\gamma$  expression is observed after treatment by geraniol [28].

### **Conclusion**

Rose Oil can be used as any other herbal oil, for cosmetic, massage and medicinal purposes. Rose oil with high amounts of antioxidant compounds is rejuvenating oil and can be penetrate in deep layers of skin. From the traditional view, rose oil is a tonic for stomach and has inhibitory effects against abnormal substances and wound healing effects for intestinal ulcers. Rather than its potential on treatment of some gastrointestinal ailments such as gastro esophageal reflux disease, IBD, hemorrhoids, which are the subject of current clinical trials, the therapeutic effects of rose oil has been confirmed for treatment of back pain during pregnancy and migraine headache especially its hot types. Although, investigation on therapeutic effects of rose oil is continuous, but deep investigation on chemical composition of rose oil is recommended for futures. The lower price, higher yield and safety of rose oil rather than its essential oil makes it as suitable candidates for clinical studies.

### **Abbreviation**

iNOS: inducible NO synthetase

Sahaj ul-Am'a: inflammatory bowel diseases or IBD

Zahir: proctitis

## Conflict of Interest

The authors have no conflict of interest.

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