

A Brief Review of Ruta Graveolens plant in Homoeopathic System of Medicine

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ABSTRACT

Ruta Graveolens is an odoriferous and evergreen herb belonging to the family Rutaceae. The plant, also known as bitter herb or common rue, is grown in gardens all over the world and is used in the homeopathic medical system. In this article, the introduction of the plant, morphological study, systematic position, and phytochemistry of the Ruta Graveolens is discussed. It has bluish leaves and is grown as ornamental. It is also cultivated as a medicinal herb, a spice, and sometimes, as an insect repellent. The plant grows in hot and dry soil conditions. For a prolonged duration, R. Graveolens has traditionally been used for the relief of pain, eye and skin complaints, and rheumatism. R. Graveolens also shows antihysterical, ophthalmic, antihelminthic, antiepileptic, antihelminthic, miscarriage, and convulsive effects.

Keywords- *Ruta Graveolens*, phytochemistry, traditional medicine, antibacterial, anti-inflammatory.

Ruta Graveolens is prepared from the fresh juice of the whole plant, Ruta Graveolens, or Rue. leaves of *Ruta graveolens* are minced finely in a food processor and extracted in 80% methanol for 24 hours. It is mixed with equal quantities of alcohol and then potentized. The plant is grown and widely cultivated in Southern Europe. Camphor antidotes the violent effects of Ruta Graveolens. It antidotes mercury [1]. *Ruta graveolens* L is the source of Rue or Rue oil, called as *Sadab* or *Satab* in Hindi.[2]. In recent literature, the genus *Ruta* contains 14 species, two of which are found in Indian flora: *R. Graveolens* L. and *R. chalepensis* L. [3]. More than 120 herbal compounds, including acridone alkaloids, coumarins, essential oils, flavonoids, and fluoroquinolones, have been discovered in the roots and other parts [4]. The *Ruta Graveolens* was mentioned by Dr. Hahnemann, the Father of Homoeopathy, in his *materia medica pura* vol. II pg 437, T.F. Allen in the *Encyclopedia of Pure Materia Medica*, Vol. VIII, P.431, Hering in *The Guiding Symptoms of our Materia Medica*, and Clarke in the *Dictionary of Practical Materia Medica*. This plant contains antihysterical, ophthalmic, vermifuge, antiepileptic, antihelminthic, abortive, spasmolytic properties. It has an adverse and

beneficial effect on the fibrous and bony tissues, particularly near joints [5]. It is also used as an analgesic in chest pain, infantile paralysis, and urinary tract disorders. [6].



(Fig. A and Fig. B) Flowering twig of *Ruta Graveolens*

Taxonomy-

Table: 1 Taxonomical classification of Ruta Graveolens

Kingdom	Plantae
Division	Tracheophytes
Order	Sapindales
Family	Rutaceae
Genus	Ruta
Species	Ruta Graveolens

Common names -

Table: 2 common names of Ruta Graveolens

Hindi	Sadap, Satap.
English	Bitter herb.
French	Rue de jardins
German	Garten Raute

Habitat- It is grown in gardens in India and other western Asian countries [7].

Morphological Description- Strong smelling, glandulose herb, often shrubby below. Stalkers, collapsed leaves with wedge-shaped segments, elongated or linear elongated segments. The flower is an umbel and turns yellow (Fig. A and B). Stems longer than capsules, bracts. Sepals are triangular and acute, while petals are round. Oblong-ovovate, pectinate, and abruptly clawed. Capsules are obtuse and short-pediculared. Angled seeds [8].

Chemical Constituents-

Furanoacridones and two acridone alkaloids (arborinine and evoxanthine) have been withdrawn from R. graveolens [9]. It also contains abundant coumarins and limonoids [10].

The toxins- The main active principles of the plant are [11]:

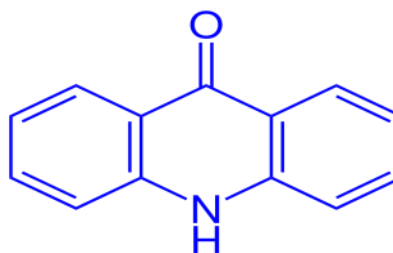
- a) Glycosides: rutine, a flavonoid.
- b) Alkaloids (quinolones): coquisagenine, skimmianine and graveoline.
- c) Furocoumarins (psoralens): bergaptene (3-methoxypsoralen) and xantotoxine (8-methoxypsoralen).
- d) Essential oils: methyl-nonyl-ketone, methyl-n-octyl ketone and methyl-heptyl-ketone.
- e) Alcohols: methyl-ethyl-carbinol, pinene, limenenes.
- f) Other compounds are: dictamine, gammafagarine, skimmianine, pteleine and kokusaginine.

- The clinically important active ingredients are psoralens, which causes hepatotoxicity and

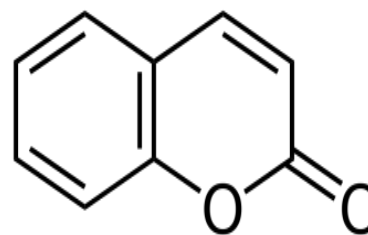
photosensitization, and methyl-nonyl-ketone, which causes effects on the uterus.

Physiological action- Fresh Rue is an acid irritant an on external application it causes inflammation, redness, and even blisters. Internally, it inflames the stomach and duodenum. If absorbed, the poison causes some narcotism, with restlessness and nervous excitement, and irritation of the uterus, which if impregnated, expels the foetus. It is known as an acro-narcotic due to its poisonous property, with a special action on the uterus. The proving of Ruta is in the fourth volume of the Reine Arzneimittellehre. The main symptom in Hahnemann’s proof was pain in the bones, joints, and cartilage, especially of a severed character. Ruta has power in dimness of vision caused by over exertion of the eyes. Dr. Guernsey recommends it for constipation with prolapse of the rectum before or during the stool [12].

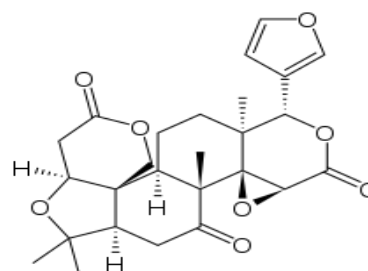
Chemical structures of various chemical constituents isolated from R. graveolens.



Acridone

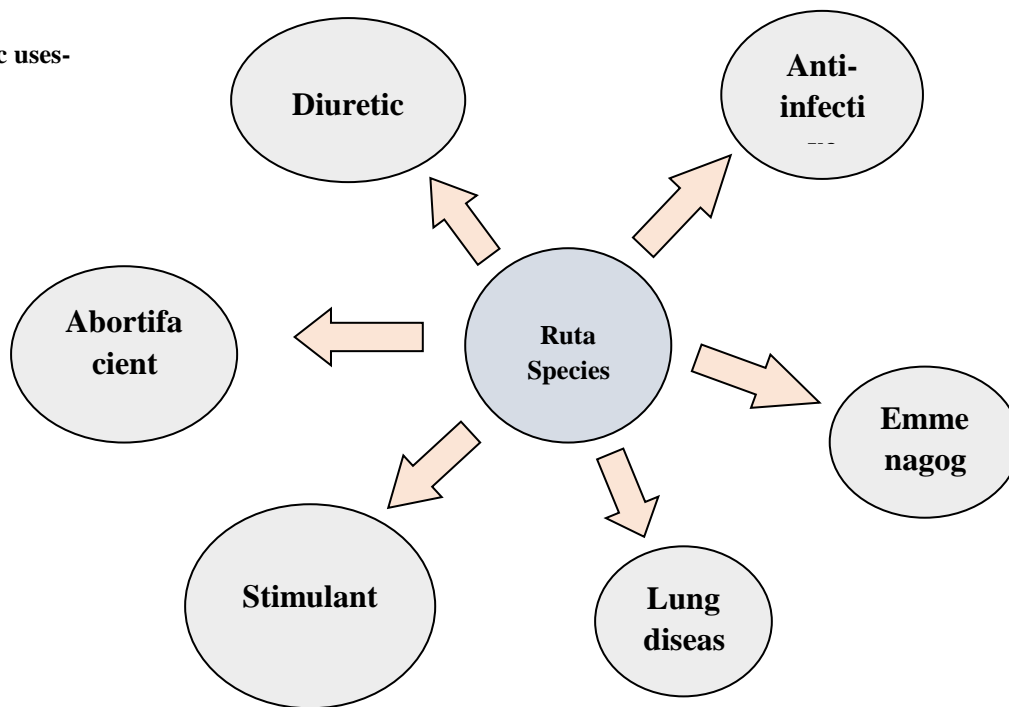


Coumarins



Limonoids

Therapeutic uses-



Due to its strong stimulant and antispasmodic property, it is used, in the form of a warm infusion i.e. as an emmenagogue. It acts as an acro-narcotic poison if administered in massive doses, and because of its emetic tendencies, it should not be administered instantly after eating. It is a powerful medicine for hysteria, coughs, croupy complaints, abdominal pain and flatulence, being a gentle stomachic. On external application, rue is an active stimulant, being used as a rubefacient. Cutting the leaves and applying them will reduce the severe pain of sciatica. In small amounts, the expressed juice is a well-known remedy for nightmares, and applying fresh leaves to the temples is said to relieve headaches. Compresses saturated with a strong decoction of the plant, when applied to the chest, have been used beneficially for chronic bronchitis [13]. If one or two leaves are chewed, a refreshing aromatic taste will permeate the mouth and any headache, dizziness, hysterical convulsions, or palpitations will be quickly relieved. Ruta has antifungal properties, so it helps cure fungal infections of the skin. In large doses, it can be toxic, so it is rarely applied directly to the skin. This plant also removes free radicals from the skin, which cause premature aging of skin. It also acts as an insecticide, so it helps get rid of lice in the hair. Due to its sedative and antiepileptic properties, this herb can be used to treat hysteria. It contains a neurotoxin that helps in relaxing and desensitizing nerves. Common rue's antibacterial action helps in treating various bacterial infections. Menstrual cramps, muscle pain, and anxiety can be effectively treated by this drug.

Homoeopathic use of Ruta graveolens according to different stalwarts-

- **Acc. to W. Boericke**, Ruta acts upon the periosteum, cartilage, eyes, and uterus. Tendency to complain about straining flexor tendons in particular to form deposits on the periosteum, tendons, and joints, especially the wrist. Overstrain of ocular muscles All parts of the body will be hurt, as if they had a bruise. Injured "bruised" bones [14].
- **Acc. to K.N. Mathur**, it is the specific remedy for lameness after sprains, eye troubles from overexertion of eyes, over-use in bad light, over-reading at night, phthisis after mechanical injuries to chest, cancer rectum, sore and sensitive nodes in bones and tendons of muscles after injury, Urticaria from eating meat, Ganglion on wrist [15].
- **Acc. to Boger**, Ruta suits best in painful weariness, heaviness. As of a rough blunt plug in parts, paralytic rigidity, thighs feel broken, chafing, flat warts, brittle bones [16].
- **Acc. to J.T. Kent**, the Ruta is often suitable for a variety of surgical conditions and periosteal discomfort due to injury. Problems with thin periosteum on the bones and on the shins. A lump inside the periosteum that has existed for months or years, sensitive, sore and nodular, because of a

blow with a stick or a hammer or from humping the shin bone [17].

- **Acc. to H.C. Allen**, in Ruta, all supporting parts of the body are painful, as if bruised. Turns and changes position frequently when lying, scrofulous exostosis, eyes burn like balls of fire, and prolapse of the rectum immediately on attempting a passage [18].
- **Acc. to E.B. Nash** Ruta has a bruised lame sensation all over like after a fall, worse in the limbs and joints. Ruta's pain and lameness seem to be a particular preference for the wrist. It is often useful for eye strain from close study, sewing, etc. The eyes feel weary and ache as if strained or they burn like balls of fire [19].
- **Acc. to M.L. Tyler** Ruta has a feeling of loss of power, especially in the thighs and lower extremities. Its beneficial effects on aching and sprained wrists and ankles. Left side head is generally affected [20].

Some important findings:

1. The volatile oils can be a new source of natural preservatives and antioxidants in various food and pharmaceutical industry applications. Current research suggests that *R. graveolens* is rich in ketone compounds, mainly 2-undecanone and 2-nonanone. According to DPPH and α -carotene/linoleic acid bleaching assays, the oil has broad spectrum antifungal and antibacterial properties, as well as moderate antioxidant properties [21].
2. In a study conducted by Ratheesh et al., it was reported that methanol extract of *R. graveolens* reduced oxidative stress and inflammation and improved pathology induced in the aorta of animals such that the herb decreased the activities of cyclooxygenase-2 and myeloperoxidase, as well as the concentration of thiobarbituric acid reactive substance, and increased the antioxidant activities of certain enzymes such as glutathione, indicating the antioxidant activity of the herb [22].
3. Preethi et al. also reported that the low concentrations of *R. graveolens* in homeopathic system had cytotoxic effects on human lymphoma and fibroblastoma cells by controlling the oxygen free radicals and preventing the peroxidation of membrane lipids, and also saved the lives of animals suffering from cancer [23].
4. Recently, a study carried out in zebrafish, a well-known animal model to study genetics,

developmental biology, and toxic compounds, has shown that *R. graveolens* administration exerts an effect on reproduction, namely a decrease in egg production and fertilization likely due to a disruption of gonadal and/or thyroid hormones [24].

5. In a study by Raghav et al. on the anti-inflammatory effects of *R. graveolens* lavender extract on adipose tissue macrophages, it was indicated that the herb has an active flavonoid metabolite, of which a large part of this flavonoid metabolite consists of rutin [25].

CONCLUSION

Ruta Graveolens is an odoriferous and evergreen herb belonging to the family Rutaceae. The plant is grown in gardens all over the world and is also known as bitter herb or common rue. It has bluish leaves and is grown as an ornamental, medicinal plant, a condiment, and, to a lesser extent, as an insect repellent. The plant is grown in hot and dry soil conditions. For a long time, *R. Graveolens* has been used to treat pain, eye and skin complaints, and rheumatism. *R. Graveolens* has also shown antihysterical, ophthalmic, vermifuge, antiepileptic, antihelminthic, abortive, and spasmolytic effects.

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