

A DRUG REVIEW ON MULETHI (GLYCYRRHIZA GLABRA LINN.) IN  
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Article Received on 05/04/2024

Article Revised on 25/04/2024

Article Accepted on 15/05/2024

**ABSTRACT**

Natural goods are a great resource for treating a wide range of ailments that are regularly included in a diet. They offer considerable defence against a range of illnesses and ailments. The goal of this study is to identify which of the fifty 'mahakashayas' herbal plants is most commonly repeated. *Glycyrrhiza glabra*, a native of Eurasia, is found in central and Mediterranean regions, southwest Asia, and central Asia. There are two types of *Glycyrrhiza glabra*: *G. glabra* var. *glandulifera* (Russian licorice) and *G. glabra* var. *typica* (Spanish licorice). *Glycyrrhiza glabra* is found in the northwestern regions of China, Spain, Italy, Turkey, Iran, and Iraq. While Mongolia, Central Asia, and the northeastern and northwest regions of China are home to *Glycyrrhiza-Uralensis*, located in southern India and Jammu & Kashmir, India. *Glycyrrhiza glabra* belongs to the *Fabaceae* family and has been valued for its ethnopharmacological properties since ancient times. Warm, subtropical, and temperate climates are ideal for licorice growth. Numerous phytochemicals, including glabrin A and B, isoflavones, glycyrrhizin, 18-B-glycyrrhetic acid, and others, are present in this plant.

**KEYWORDS:** *Glycyrrhiza glabra*, Licorice, Glycyrrhetic acid, Glycyrrhizin, Mulethi.**INTRODUCTION**

One of the major sources of medications has always been plants. The health of humans is significantly impacted by medicinal plants. These plants have medical potential because they contain certain chemicals that affect human physiology. The primary bioactive components are found in the *Glycyrrhiza glabra* plant. One of the helpful medicinal plants, *Glycyrrhiza glabra*, is also most commonly seen in the Charak Samhita. *Acharya sushruta* has *mulethi* mentioned it in *sarivadigana*, *arjunadigana*, *ambasthadigana*, *nygrodhadigana* and *utpaladigana*. *Mulethi* appears maximum 11 times in the *Charak samhita in mahakshay* (group of ten medicine).

*Jeevneey*, *Kanthyaa*, *Sandhaneey*, *Varnya*, *Kandughna*, *Mutraviranjaneey*, *Shonit-sthapan*, *Chardinigrahan*, *Snehopag*, *Vamnopag*, *Asthapanopag*.

*Glycyrrhiza* is derived from the ancient Greek term *glykas*, which means sweet, and *rhiza*, which means root. *Mulethi* is the term for *Glycyrrhiza glabra* in northern India. *G. glabra* is indigenous to parts of Asia and the Mediterranean region. It is sometimes referred to as sweet wood, *licorice*, *madhuk*, *kalitak*. *G. glabra* is traditionally used to treat cough, cold, discomfort, edoema, and other.

**Morphology**

The plant is an herbaceous perennial with a long, strong primary taproot that grows to a height of 1-2 metres. There are three to five subsidiary taproots and a 15 cm long taproot. Each year, new stems are generated. The leaves droop, are pinnately unusual, and are alternate. The inflorescence is 10–15 cm long and resembles an upright spike. The flowers have a short, 1-1.5 cm long pedicel and are bluish to pale violet in colour. The fruit is a pod that is 1.5–2.5 cm long, and the calyx is small and bell-shaped. 3-5 seeds of brown reniform.<sup>[1]</sup>

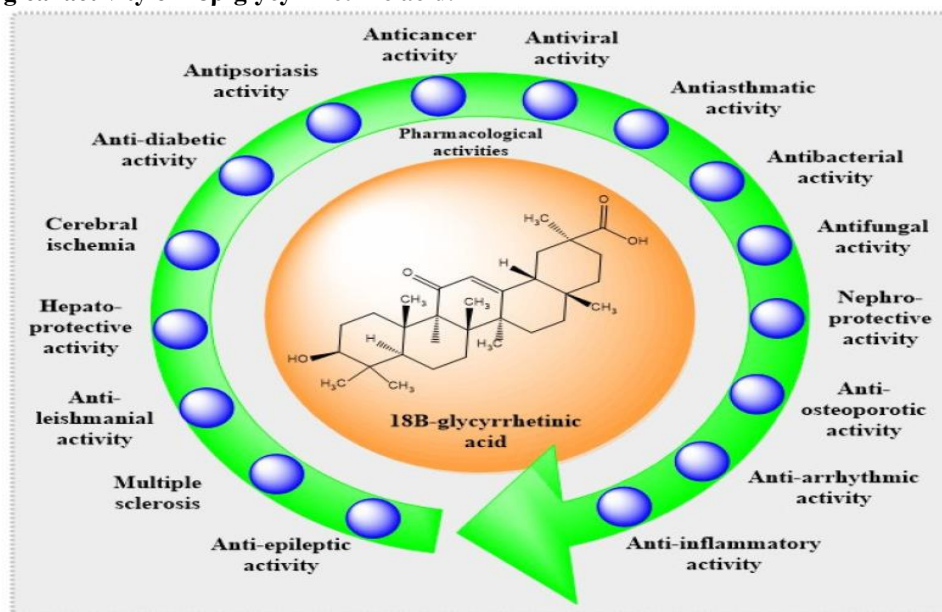
**Pharmacological properties *Yashtimadhu*<sup>[2]</sup>****Rasa** - Madhura**Guna** - Guru, Snigdha**Veerya** - Sheeta**Vipaka** - Madhura**Doshagnata** - Vata-pitta-shamaka

**Chemical composition:-** Glycyrrhizin, a saponin found in the roots of *Glycyrrhiza glabra* Linn, is rich in flavonoids and 60 times sweeter than cane sugar. Isolated from roots are four novel isoprenoid-substituted phenolic constituents: licoriphenone, 1-methoxyficifolinol, isoangustone A, and semilicoisoflavone B. Proteins, amino acids, polysaccharides, simple sugars, and mineral

salts (including calcium, phosphorus, sodium, potassium, iron, and others) can all be found in liquorice. Pectin, resins, starches, sterols, gums, magnesium, silicon, selenium, manganese, zinc, and copper). There have been reports of oestrogens, tannins, glycosides, coumarins, phytosterols (sitosterol and stigmasterol), vitamins (B1, B2, B3, B5, E, and C), and oestrogens. Many biological substances have also been isolated; they primarily consist of flavonoids, triterpenes, and saponins, which give the food its sweet taste. Aglycones are found as oleananes, and liquorice saponins are present as glucuronides. The primary distinguishing feature of licorice is its triterpene saponins, which give it its sweet flavour. The components of these substances the effects of licorice as a medicine might differ greatly depending on the harvesting, processing, and geographic sources. Aglucones are identified as oleananes, and liquorice saponins are present as glucuronides. Triterpene saponins, the primary property that distinguishes licorice, are what give it its sweet flavour. The components of these compounds the preparation, storage, and collection techniques for licorice as a medicine can significantly

affect its effects. The main constituent of roots is glycyrrhizin, a triterpenoid saponin that is almost 50 times sweeter than sucrose, being the primary active ingredient. Glycyrrhizin represents about 10% of the liquorice root dry weight, being a mixture of potassium, calcium and magnesium salts of glycyrrhizic acid that vary between 2% and 25%. After oral administration, glycyrrhizin is metabolised to 18-glycyrrhetic acid 3-omonoglucuronide and glycyrrhetic acid by intestinal bacteria. The minor phenolic compounds are isoprenoid-substituted flavonoids, chromenes, coumarins, dihydrostilbenes, coumestans, benzofurans, and dihydrophenanthrenes. Furthermore, many volatile components are present in roots, such as geraniol, pentanol, hexanol, terpinen-4-ol, and  $\alpha$ -terpineol, conferring the characteristic odour. The essential Oil obtained from *G. glabra* is also rich in propionic acid and benzoic acid, furfuraldehyde, 2,3-butanediol, furfuryl formate, maltol, 1-methyl-2-formylpyrrole, and trimethylpyrazine.

#### A pharmacological activity of 18 $\beta$ -glycyrrhetic acid.<sup>[3]</sup>



#### Acharya Charaka using Mulethi Dravya repeatedly in Mahakashaya

**Jeevneey** - According to *acharya charak in jeevneeya mahakshaya Dravya*. Jeevak, Rushabhak, Meda, Mahameda, Kakoli, Kshirkakoli, Mudgparni, Mashaparni, Jivanti, Madhukam.<sup>[4]</sup>

According to *acharya chakrapani, Nirukti* of the word *jeevaneeya* "jeevane hito jeevaneeyah" i.e. that which is beneficial for life(vital). In the other words, by which the work is completes is called *jeevaneeya*.<sup>[5]</sup> The word is vital here means longevity (good for life or longevity). Since the benefits of life are extremely desirable for everyone, the author *Acharya* has first mentioned *Jeevan mahakashaya*. *Jeevan mahakashaya dravyas guna*,

*Guru, Snigdha, Sheeta, Mrudu*. Beneficial for maintenance of health & Maintain health of all 7 *dhatu*s.

**Kanthya** - *Acharya charak in kanthya mahakshaya Dravya*. Sariva, Ikshumul, Madhuk, Pippali, Draksha, Vidari, Kaitarya, Hansapadi, Bruhati, Kantakari.<sup>[6]</sup>

This *dravyas* provides stability. That is, it keeps the throat in a normal stage, that is, it helps in maintaining the balance of the *dosh, dhatu and mala* present in throat. The drugs having *Katu, Tikta rasa* reduces *kapha* & inflammation by absorbing *kled* and drugs which are sweet in taste controls *vata*. It removes dryness from body & act as lubricant. The medications with the *Kanthya* property are helpful in treating various

combinations of these *Dravyas*, like *Kasa*, *Swasha*, *Swarabheda*, and other *Kapha* and *Vata Pradhana Kantha Vikaras*.

The medications listed under the *Kanthy Mahakashaya* heading *Madhuka*, *Sariva*, *Draksha*, *Ikshumula*, and *Vidari* as well as *Madhura*, *Snigdha*, and *Sheeta Veerya* are beneficial for relieving throat dryness and promoting smoothness and lubrication. The medications that contain *Kaiterya*, *Brihati*, *Katu*, *Tikta Rasa*, *Ruksha*, and *Ushna Veerya*. When an excess of *Kapha* manifests in a situation, *Hamsapadi* and *Pippali* are helpful because they serve as *Kleda Nashaka* and *Kapha*. Thus, the *Kanthy Dravyas* can successfully regulate both *Kanthopalepata* and *Rukshata* in the throat. With their *Guru Guna*, *Madhuka*, *Sariva*, *Draksha*, *Ikshumula*, *Vidari*, and *Hamsapadi* aid in *Vata Shamana*; with their *Laghu Guna*, *Bruhati*, *Kanthakari*, *Kaiterya*, and *Pippali* aid in *Kapha Shamana*. *Vatakapha Shamaka* is one of the *Mahakashaya*, *Pippali*, *Katphala*, *Bruhati*, and *Kantakari*. *Vatapitta Shamaka* is made up of *Ikshu*, *Draksha*, *Vidari*, and *Hamsapadi*. As *Tridosha Hara*, *Sariva* and *Madhuka* aid in the removal of the *Vikruties* from *Kantha Pradesh*. With their anti-inflammatory, anti-viral, anti-bacterial, antioxidant, expectorant, antitussive, antiseptic, antibiotic, immunomodulator, and other properties, all the *Dravyas* in the *Kanthy* group contribute to the betterment of health.<sup>[7]</sup>

**Sandhaniya** - Acharya charak in sandhaniya mahakashaya Dravya. Madhuk, Madhukparni, Prushniparni, Sumanga, Ambashthaki, Mocharas, Dhataki, Lodhra, Priyangu, Katphala.<sup>[8]</sup>

*Ruksha*, *Sheeta*, *Guru*, *Kashaya ras*, *Sheetal veerya*. It absorbs *kleda*, heal fractures, wound, injured blood vessels.

**Varnya** - Acharya charak in varnya mahakashaya Dravya. Chandan, Tunga, Padmak, Ushir, Madhuk, Manjistha, Sariva, Payasya, Sita, Lata.<sup>[9]</sup>

These substance helps in maintaining the natural color of our body. And if the color of any part of our body gets distorted or changed, then it works to bring it back to normal state. The drugs having *madhur rasa* and *shit veerya* nourishes all *dhatu*s, increases complexion and *oja*. Some of the medicine having *ushna veerya* helps in purifying blood and improves Complexion ex. *Manjistha*, *Haridra*. Some medicine absorbs *kleda* having *tikta* and *kashaya* taste. Helps in improving Complexion ex. *Chandan*, *priyangu*.<sup>[10]</sup>

**Kandughna** - Acharya charak in kandughna mahakashaya Dravya. Chandan, Nalad, krutamal, Naktamal, Nimba, Kutaj, Sarshap, Madhuk, Daruharidra, Mustak.<sup>[11]</sup>

These *dravyas* basically remove the itching completely. Drugs having *laghu*, *ruksha*, *ushna* properties reduces

*kleda* and *kapha* ex. *Manjistha*, *daruharidra*, *haridra*. Common *guna* present in the *mahakashaya* are *laghu* and *ruksha*. Both these *guna* are related to *vayu* and *akasha mahabhoota*. Action of these *mahabhoota* is against *prithvi* and *jala mahabhoota*, which ultimately decreases *Kapha* thus help in relieving *kandu*. Some drugs cleanses blood ex. *Nimba*, *usher*, *Chandan*.<sup>[12]</sup> *Tikta-kashaya* is the overall *rasa* of *mahakashaya*. The effects of both *rasas* are *Kapha-Pitta shamak*. Given that *kandu* is a *Kapha pradhana vyadhi*, or symptom, with a *Pitta* component, this *kashaya* may aid in reducing associated *doshas*. The combined action of all the medications is *tridoshaghna*, primarily in *Kapha-Vatahara* and *Kapha-Pittahara*, but also in *Rakta-prasadana*, *medo-lekhana*, *kushthaghna*, *shoth-hara*, etc. Therefore, in addition to relieving *kandu*, the medication employed in the study possessed a precise combination of qualities that allowed it to combat the disease process, particularly the manifestation of vitiated *kapha*.

**Mutraviranjaneeya** - Acharya charak in mutraviranjneeya mahakashaya Dravya. Padma, Utpal, Nalin, Kumud, saugandhik, pundarik, shatapatra, madhuk, priyangu, Dhataki pushpa.<sup>[13]</sup>

The term *virajana* means providing colour to something. Hence, *Mutraviranjaneeya Mahakashaya* will be capable of correcting the colour, i.e, in bringing back the *prakrita varna* to *mutra*.

मूत्रं नयति विरागं अथवा मूत्रस्य दोषसम्बन्धनिरासं करोति नाम प्राकृत वर्णम स्थापयति मूत्र विरजनीयम् ।

(Ayurveda Sabdakosham)

The drugs which provide normal colour to *mutra* after correcting the pathology occurred, i.e, after removing the mutual interaction between the *doshas* which served for the *vikrita varna*.

दोष दुष्टं मूत्रं विरञ्जयत्वा प्रकृतौ स्थापयति तद् मूत्रविरजनीयम् ।  
(Internet source)

The word *विरंज* means *विर्मल* (*Sabdakalpadruma*).<sup>[14]</sup>

**Shonit-sthapan** - Acharya charak in shonit-sthapan mahakashaya Dravya. Madhu, madhuk, rudhir, mocharas, mrut kapal, lodhra, gairik, priyangu, sharkara, laja.<sup>[15]</sup>

*Sthapan* means one who fulfils a need, that is, which contracts with the body part and fulfils the needs of the appendage. *Raktasthambhak dravya* have *kashay ras*, *shit veerya* like- *ashok*, *lodhra*. *Rakta vardhak dravya* have *laghu*, *snigdha guna* and *amla rasa* like- *dadimavleha*, *draksha*.

**Chardinigrahan** - Acharya charak in chardinigrahan mahakashaya Dravya. Jambu, matulung, aamra pallav, amlabadar, dadim, yav, shastik, mrut, usher, laja.<sup>[16]</sup>



*Chardinigrahan* means *Dravya* to prevent forced vomiting. In contemporary medicine, the term "*Chardi*" is associated with emesis or vomiting. It is a pathological condition termed *Vamana Karma*, which is not the same as the curative process of vomiting. The act of forcefully expelling stomach contents through the mouth is referred to as vomiting. The body's *doshas* become vitiated in *Chardi*; however, a certain *dosha* is mostly vitiated based on its *Doshaja Bheda*. *Madhura Rasa* and *Kashaya Rasa* are found in most medications, including *Jambu*, *Matulunga*, *Badara*, *Dadima*, *Yava*, *Yastika*, and *Ushira*. *Madhura* is primarily associated with *Prithvi* and *aap Mahabhuta*, which are *Adhobhagahara*, whereas *Kashaya Rasa* is associated with *Stambhana Karma*. In *Vataja Chardi*, *Snigdha* and *Guru Guna Dravyas* are mentioned. Because *Laghu Guna* possesses *Langhana Karma*, it aids in the breakdown of *Aama*.<sup>[17]</sup> Medications containing *Seeta Veerya* also have *Stambhana Karma*, which is related to *Chardi* and is shown in *Trishna*, *Murcha*, and *Daha*. While *Madhura Vipaka Dravyas* are indicated in *Vataja Chardi*, *Katu Vipaka Dravyas* are indicated in *Pittaja* and *Kapha Chardi*. These drugs have *madhur ras* and *vipak, shita veerya, snigdha* pacify *pitta*.

**Snehopag** - Acharya charak in *snehopag mahakshaya Dravya*. *Mrudvika*, *madhuk*, *madhuparni*, *meda*, *vidarikanda*, *kakoli*, *kshirkakoli*, *jivak*, *jivanti*, *shalparni*.<sup>[18]</sup>

The human being is considered the essence of *Sneha*. It is also believed that the *Prana* or life is dependent on this *Sneha Tattva* in our body. *Snehana*, or Oleation Therapy. *Snehopaga* is a group of drugs that help promote unctuousness or aid the oleation therapy, to carry out lubrication process in the body, the *Dravya* which help in lubrication of the body through tear action come in the category of *Snehopag Mahakashya*. Certain *Mahakashayas* are known to support or facilitate *Upaga*, or evacuative, therapies. The term "*Upaga*" means "beneficial," "coming near," or "joining." Therefore, the medications listed under the *Upaga Mahakashaya* group improve the effectiveness of the procedures by either encouraging appropriate evacuation in the event of an *Ayoga* or preventing an *Ayoga*. The term "*Upaga mahakashayas*" refers to sets of ten medications designed to work in tandem to maximise the effects when the main medication is present.<sup>[19]</sup>

**Vamnopag** - Acharya charak in *vamnopag mahakshaya Dravya*. *Madhu*, *madhuk*, *kovidar*, *karbudar*, *Nip*, *vidul*, *bimbi*, *shanapushpi*, *Pratyakpushpa*.<sup>[20]</sup>

As per the definition of *Upaga*, the medicines which helps the main drug to carry out its function is called as *Upaga*. *Vamanopaga* drugs helps the *vamana* drugs to carry out the procedure of *vamana*. The drugs which carry out the procedure of *Vamana* are called as *Vamaka Dravyas*. These drugs consist the properties like *Ushna* (Hot), *Tikshna* (Sharp), *Sukshma* (Microscopic), *Vyavayi* (spreading all over the body), *Vikasi* (spreading all over

the body and causing loosening of all joints and debility). *Panchabhautik* composition of *Agni* and *Vayu Mahabhuta* with *Urdhvhahgahara Parbhava*. E.g. *Madanphala*, *Jimutaka*, *Ekshavaku*, *Dhamaragav*, *Vatasaka*, *Kritvedhana*.

The first step in the *Panchakarma* cycle, *Vamana*, is particularly useful for treating *Kaphaja* problems. *Vamana* is the process of getting rid of vitiated *Dosha* by *Urdhav-bhaga*, or by mouth. *Upaga* refers to the class of medications that facilitate the primary drug's ability to perform its function more effectively.<sup>[21]</sup> Drugs called *vamanopaga* aid in correcting *vamana* or enhance the effects of *vamana dravyas*. The *Vamanopaga Mahakshaya Dravya's*, *Tikta Rasa*, *Katu Vipaka*, *Ushna Virya*, *Agni*, and *Vayu Mahabhuta Pradhanta* are most prevalent.

**Asthapanopag** - Acharya charak in *asthapanopag mahakshaya Dravya*. *Trivruta*, *Bilva*, *Pipali*, *Kushtha*, *Sarshapa*, *Vacha*, *Fruit of Vatsaka*, *Satapushpa*, *Madhuka* & *Madanphala*.<sup>[22]</sup>

*Asthanopag Mahkashay*, it is evident that *Tikta*, *Katu*, *Kashay*, and *Madhur rasa* are among the majority of the *dravyas* mentioned above by Acharya Charak. Of all the medications listed in *Asthanopag Mahakashaya*, *Tikta Rasa Dravya* (8) and *Katu Rasa Dravya* (7) are the most numerous, followed by *Kashaya Rasa Dravya* (2) and *Madhura Rasa Dravya* (3). *Panchmahabhuta* states that it demonstrates the dominance of *agni*, *vayu*, and *akash mahabhuta pradhan dravya*, which demonstrates medicinal properties including antiseptic, anti-inflammatory, anti-arthritis, and antidiuretic properties.<sup>[23]</sup>

## DISCUSSION AND CONCLUSION

A single medication can have many mechanisms of action, and its characteristics and modalities of interaction with biological systems might result in diverse pharmacological effects. In a similar vein, distinct medications may cause comparable patterns to provide a shared cumulative pharmacological effect. As a result, certain *Mahakashaya* have been assigned to these medications. The components of *Mahakashayas* appear to be the best options for herbs under the circumstances. The names of the decoctions are derived from the functions they perform in the body, the majority of which are supportive rather than curative. According to *acharya charak Mulethi* mainly work in *Jeevneey*, *Kanthya*, *Sandhaneey*, *Varnya*, *Kandughna*, *Mutraviranjaneey*, *Shonit-sthapan*, *Chardinigrahan*, *Snehopag*, *Vamnopag*, *Asthapanopag*.

This review has provided a thorough understanding of the phytochemical composition, pharmacological actions of *G. glabra*, and the *G. glabra* maximum 11 times in the *mahakashaya*. This plant is widely used in traditional medicine and as an ingredient in food products, especially as a flavouring and sweetener. The roots are

used to cure and prevent a number of side effects, including inflammation of the skin, cancer, and microbial and viral infections. With flavonoids accounting for the majority of biological actions, they are the most significant of the bioactive chemicals. Numerous phytochemicals have been identified and linked to the biological activities reported, such as hepatoprotection, antioxidant, antiviral, antimicrobial, and anti-inflammatory properties, as well as glabrin A and B, glycyrrhizin, and 18 $\beta$ -glycyrrhetic acid. These activities generally agree with traditional knowledge and folk medicine.

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