Glycyrrhiza glabra


https://ayurwiki.org/Ayurwiki/Glycyrrhiza_glabra_-_Yashtimadhu

TAXONOMIC CLASSIFICATION:[1]

- *Kingdom: Plantae*
- *Family: Leguminosae*
- *Division: Angiospermae*
- *Class: Dicotyledoneae*
- *Order: Rosales*
- *Genus: Glycyrrhiza*
- *Species: glabra*

INTRODUCTION:

Glycyrrhiza glabra is commonly known as Licorice/Liquorice, Sweet wood, Mulahatti and Yashtimadhu, Jeshthamadh. Glycyrrhiza glabra is a widely used classical medicinal plant and is found in numerous traditional formulas. The root of G.glabra relieves thirst, cough, asthma, bronchitis, abdominal colic, eye troubles and cures ulcers. It has various medicinal properties like wound healing activity, antiulcer activity, memory enhancing activity, hair growth promoting activity, antithrombotic effect, hepatoprotective effect, cerebroprotective effect, antidyslipidaemic activity, antioxidant activity etc.[4]Licorice has been recommended as a prophylactic agent for gastric and duodenal ulcers. It is employed in dyspepsia as an anti-inflammatory agent during allergenic reactions . It is used as a contraceptive, laxative, anti-asthmatic, emmenagogue, galactagogue, anti viral agent. It is also effective against anemia, gout, sore throat, tonsillitis, flatulence, sexual debility, hyperdypsia, fever, skin diseases, swellings. Licorice is effectively used in acidity, leucorrhoea, bleeding, jaundice, hiccough, hoarseness, bronchitis, vitiated conditions of Vata dosha, gastralgia, diarrhea, fever with delirium and anuria [1]

Licorice is a Herb of 1 to 1.5 meter in height. It grows in the sub - tropical and warm temperate regions of the world. Licorice grows in fertile, sandy or clay soil near a river or stream where

enough water is available for the plant to flourish in the wild, or under cultivation where it can be irrigated. It is native to Arabia, Persian, Gulf, Afganisthan, Turkesthan, Asia minor, Siberia etc but the root is cultivated in the Punjab, Sub Himalayan tracts from the Chenab eastwards, Sindh & Peshwar Valley, Burma & Andaman Islands in India and Pakistan. Dried licorice roots are found in all the bazaars of India.[2]

CHEMICAL CONSTITUENTS:

The roots of *Glycyrrhiza glabra* Linn.contain glycyrrhizin, which is a saponin that is 60 times sweeter than cane sugar; Flavonoid rich fractions include liquirtin, isoliquertin liquiritigenin and rhamnoliquirilin and five new flavonoids- glucoliquiritin apioside, prenyllicoflavone A, shinflavanone, shinpterocarpin and 1-metho-xyphaseolin licopyranocoumarin, licoarylcoumarin, glisoflavone and new coumarin-GU-12. Four new isoprenoid-substituted phenolic constituents – semilicoisoflavone B, 1-methoxyficifolinol, isoangustone A, and licoriphenone isolated from roots. [3]. Root contains 3.6% glycyrrhizin, a yellow amorphous powder-asparagine, a glycoside isoliquirtin 2.2%, glucose 3.8%, starch, gum, mucilage, amorphous, sulphuric acid and metallic acids, calcium and magnesium salts.[8]

PROPERTIES AND USES:)

https://netchanting.com/mulethi-licorice-health-benefits-side-effects-cultivation/)

Mulethi (Yashtimadhu) has following healing properties.

1. Antacid
2. Anti-ulcerogenic
3. Anti-inflammatory
4. Anti-oxidant
5. Anti-Alzheimer's
6. Anti-obesogenic
7. Anti-adipogenic
8. Anti-atherogenic
9. Anticancer
10. Anti-angiogenic (in cancer or Tumors)
11. Anti-proliferative (in cancer or Tumors)
12. Anti-asthmatic
13. Antibacterial
14. Adaptogenic
15. Analgesic
16. Anti-arthritic
17. Antidepressant
18. Antioxidant
19. Anti-stress
20. Antitussive
21. Aphrodisiac
22. Demulcent
23. Expectorant
24. Immuno-modulator
25. Mild estrogenic – It might influence estrogen level in women.

SIDE EFFECTS OF EXCESS CONSUMPTION:[5]

- High Blood Pressure
- Low Potassium Levels
- Weakness
- Paralysis
- Occasionally Brain Damage

- Tiredness
- Absence Of A Menstrual Period In Women
- Headache
- Bloating
- Water And Sodium Retention

DOSAGE:

As mentioned in Ayurvedic Pharmacology, 1gm to 2 gm of Root powder is safe for consumption [6]

The general dosage of Mulethi Churna (Yashtimadhu Powder) is as follows.	
Children	250 mg to 1.5 grams *
Adults	1 to 3 grams *
Maximum Possible Dosage	6 grams Per Day (in divided doses)
* Twice Daily with Water, Lukewarm Milk or as recommended by physician	
Best Time to Take: Before Meal in abdominal diseases like gastritis, ulcer etc.	

(https://www.ayurtimes.com/mulethi-yashtimadhu/)

RESEARCH:

1. One of the very common side effects of Radiation/Chemotherapy especially of the head and neck malignancies is mucositis. Mucositis decreases immunity and quality of life as well as poor tolerance to surgery and altered efficacy of Chemotherapy and Radiotherapy. This study was designed with an objective to minimize the radiation induced mucositis, skin reaction, xerostomia, change in voice etc. with an Ayurvedic preparation *Yashtimadhu Ghrita* (processed ghee). Total 75 patients were randomly divided into four groups and drugs were administered: Group A with local application

of *Yashtimadhu* powder and honey in the oral cavity for few minutes prior to radiotherapy along with oral intake of *Yashtimadhu Ghrita*; Group B with only local application of the *Yashtimadhu* powder and honey in the oral cavity; Group C patients administered with only local application of honey in the oral cavity; Group D on conventional modern medication controlled group. All these patients under four groups received Radiotherapy and Chemotherapy for maximum duration of 7 weeks. Mucositis and Skin reactions were observed in 100% of patients with varying degree. The intensity of Radiation and Chemotherapy induced mucositis was reduced to a great extent by the trial drug. Hence, *Yashtimadhu* (*Glycyrrhiza glabra*) can be used effectively in prevention and treatment of oral mucositis post radiation and chemotheraphy in patients of cancer, especially of the head and neck region.[7]

2. Licorice preparations have been used to treat viral hepatitis since the late 1970s. In recent years, many studies have shown that licorice extract has significant antiviral activity against HIV, severe acute respiratory syndrome-coronavirus (SARS), HSV, influenza virus (H3N2), rotavirus, respiratory syncytial virus, varicella zoster virus, coxsackie virus, and enterovirus . However, as far as a single compound is concerned, although many compounds have been isolated from licorice, only two triterpenoids, GC and 18β-GA, have been reported to possess antiviral activity. They were found to have a significant positive impact on HIV, H3N2, HSV, DHV, HCV, PrV, and IAV. The antiviral compounds, the possible mechanisms for antiviral activity, virus types, and correlated references are listed in Many in vitro experiments have shown that GC inhibits HCV by suppressing the release of infectious particles , inhibits HSV by depressing the cellular adhesion, inhibits influenza virus by reducing HMGB1 binding to DNA and suppressing interactions between viral macromolecules and host proteins, inhibits HIV by preventing the virus from replication, and inhibits H5N1 not by interfering with H5N1 replication, but by controling H5N1-induced proinflammatory gene expression. The dispute about whether GC inhibits virus replication still needs further study. GC also interacts with the cell membrane and reduces endocytic activity, and causes deregulation of generating the mature forms of viral mRNA encoding, which is a process important for viral stability. GA shows significant antiviral activity against rotavirus replication by reducing the amounts of viral proteins VP2, VP6, and NSP2 at a step or steps subsequent

to virus entry. It also effectively inhibits HIV-1 by reducing the accumulation of virus antigen p24 and protects cells from the cytopathogenic action of the virus. In vivo studies have shown that GC demonstrates a pronounced lymphocytic proliferation response on white Pekin ducklings, and reveals a good immune stimulant and antiviral effect against DHV. A combination of glutamyl-tryptophan and GC exerts a protective effect in reducing the death of H3N2 virus-infected mice. In summary, GC and GA exert antiviral activity mainly by inhibiting the replication and release of the virus, suppressing interactions between the virus and host cells, activating immune responses in host cells, and attenuating a virus-induced anti-inflammatory response.[9]

3. Hydromethanolic root extract of *Glycyrrhiza glabra* exhibited marked antioxidant activity in a test tube system. *Glycyrrhiza* (root) have a plenty of polyphenolic components as a potential source of antioxidants. Licochalcones B and D exhibit a potential activity by inhibiting the microsomal lipid peroxidation. Retrochalcones exhibit mitochondrial lipid peroxidation and prevent red blood corpuscles from oxidative hemolysis. Isoflavones like glabridin, hispaglabridin A and 3′hydroxy-4-*O*-methylglabridin present in *Glycyrrhiza glabra* were found to have potential antioxidant activity. More recently, dehydrostilbene derivatives like α-dihydro-3,5,4-trihydroxy-4,5-diiodopentenylstilbene have been isolated and reported as free radical scavengers. Research shows that on being broken down in the gut, glycyrrhizin exerts an anti-inflammatory action similar to hydrocorticosone and other corticosteroid hormones.[10]

PRECAUTION AND WARNING:[5]

Pregnancy and breast-feeding: It is unsafe to take licorice during pregnancy. High consumption of licorice during pregnancy, about 250 grams of licorice per week, seems to increase the risk of early delivery. It might cause a miscarriage or early delivery.

Heart disease: Licorice can cause the body to store water, and this can make congestive heart failure worse. Licorice can also increase the risk of irregular heartbeat.

High blood pressure: Licorice can raise blood pressure. Avoid Licorice in case of high blood pressure.

Hypertonia: Licorice can cause the level of potassium to drop in the blood. This can make hypertonia worse.

Hypokalemia: Licorice can lower potassium in the blood. If your potassium is already low, licorice might make it too low.

Sexual problems in men: Licorice can lower a man's interest in sex and also worsen erectile dysfunction (ED) by lowering levels of testosterone.

Surgery: Licorice might interfere with blood pressure control during and after surgery. One must stop taking licorice at least 2 weeks before a scheduled surgery.

INTERACTION WITH MEDICATION:[5]

- **Warfarin (Coumadin) interacts with LICORICE**

Warfarin (Coumadin) is used to slow blood clotting. The body breaks down warfarin (Coumadin) to get rid of it. Licorice might increase the breakdown and decrease the effectiveness of warfarin (Coumadin). Decreasing the effectiveness of warfarin (Coumadin) might increase the risk of clotting.. The dose of warfarin (Coumadin) might need to be changed.

- **Digoxin (Lanoxin) interacts with LICORICE**

Large amounts of licorice can decrease potassium levels in the body. Low potassium levels can increase the side effects of digoxin (Lanoxin).

- **Estrogens interacts with LICORICE**

Licorice seems to change hormone levels in the body. Taking licorice along with estrogen pills might decrease the effects of estrogen pills. Some estrogen pills include conjugated equine estrogens (Premarin), ethinyl estradiol, estradiol, and others.

- **Ethacrynic Acid (Edecrin) interacts with LICORICE**

Licorice can cause the body to get rid of potassium. Ethacrynic acid (Edecrin) can also cause the body to get rid of potassium. Taking licorice and ethacrynic acid (Edecrin) together might cause potassium to become too low.

- **Furosemide (Lasix) interacts with LICORICE**

Licorice can cause the body to get rid of potassium. Furosemide (Lasix) can also cause the body to get rid of potassium. Taking licorice and furosemide together might cause the potassium levels in your body to go too low.

- **Medications changed by the liver (Cytochrome P450 2B6 (CYP2B6) substrates) interacts with LICORICE**

Some medications are changed and broken down by the liver.Licorice might decrease how quickly the liver breaks down some medications. Taking licorice along with some medications that are broken down by the liver can increase the effects and side effects of some medications. Some of these medications changed by the liver include ketamine (Ketalar), phenobarbital, orphenadrine (Norflex), secobarbital (Seconal), dexamethasone (Decadron), and others.

- **Medications for high blood pressure (Antihypertensive drugs) interacts with LICORICE**

Large amounts of licorice seem to increase blood pressure. By increasing blood pressure licorice might decrease the effectiveness of medications for high blood pressure. Some medications for high blood pressure include captopril (Capoten), enalapril (Vasotec), losartan (Cozaar), valsartan (Diovan), diltiazem (Cardizem), amlodipine (Norvasc), hydrochlorothiazide (HydroDIURIL), furosemide (Lasix), and many others.

- **Medications for inflammation (Corticosteroids) interacts with LICORICE**

Some medications for inflammation can decrease potassium in the body. Licorice might also decrease potassium in the body. Taking licorice along with some medications for inflammation might decrease potassium in the body too much. Some medications for inflammation include dexamethasone (Decadron), hydrocortisone (Cortef), methylprednisolone (Medrol), prednisone (Deltasone), and others.

- **Water pills (Diuretic drugs) interacts with LICORICE**

Large amounts of licorice can decrease potassium levels in the body. Water pills can also decrease potassium in the body. Taking licorice along with water pills might decrease potassium in the body too much. Some water pills that can deplete potassium include chlorothiazide (Diuril), chlorthalidone (Thalitone), furosemide (Lasix), hydrochlorothiazide (HCTZ, HydroDIURIL, Microzide), and others

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