

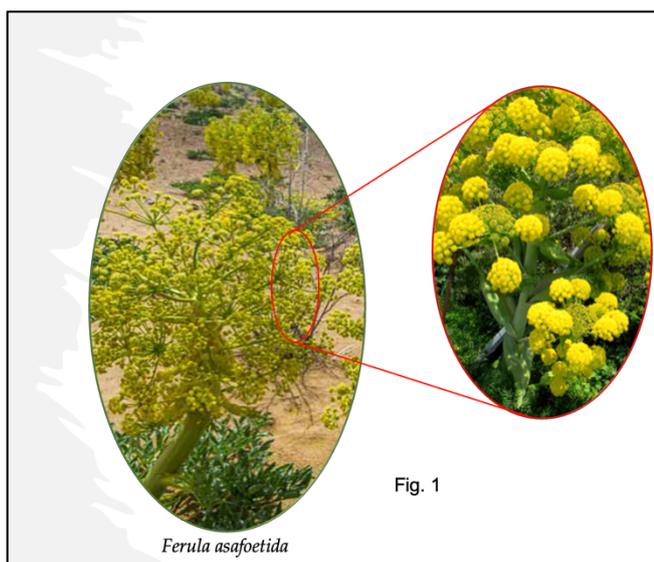
Hing for Health – What, Where and Why?

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1. Introduction

Hing, also called asafoetida (*Asa* means mastic or aromatic resin obtained from mastic trees and *Foetidous* means smelly referring to its strong sulfurous odor), is a sticky dehydrated plant sap obtained from roots and rhizome of certain ferula plants including *Ferula foetida*, *Ferula asafoetida*, *Ferula lutensis* and *Ferula rubricaulis* (family: Umbelliferae) (Fig. 1: Representative picture of *Ferula asafoetida* tree and flowers). These species, natives of Afghanistan, Iran, and Uzbekistan, grow as long bush, and have swollen roots and root tubers. Widely accepted as an indispensable spice and heart for the Indian kitchen, it is often substituted for garlic and onion (for vegetarian food and tadka for lentils, in particular) and is known for unique umami flavor (distinct savoriness).



Besides its use in Indian cuisine, it has a history of use in folk medicine in Afghanistan and Iran due to its highly trusted health benefits. In Indian traditional home medicine, Ayurveda, it is trusted to possess appetizer (*Deepan*) and digestive (*Pachan*) properties. With its prior use for gut health, to aid digestion and eliminating toxins and gas, it is also called “Gut Tonic”, used as a home medicine for gastrointestinal disorders, diarrhea and spasm. A pinch of hing in warm water is recommended as a remedy for hiccups, bloating and gas. It helps calming the digestive fire and ease asthma, bronchitis, kidney stones and a variety of microbial/parasitic infections. Improving the digestive health and metabolic rate helps to lower blood glucose and blood pressure levels. It is known to help in reducing symptoms of inflammatory bowel diseases, such as irritable bowel syndrome and maintain bowel regularity.

Chemical constituents of hing include carbohydrates (70%), protein (5%), fat (1%), minerals (7%) and other compounds including calcium, phosphorus, sulphur, as well as various aliphatic and aromatic alcohols. It is an exceptional source of potent antioxidants, widely established as antistress and antiaging ingredients for maintaining body and brain health, with increasing age in particular. Good metabolism and metabolic rate help in weight loss and maintenance of organ health. Skin is largely benefited by antioxidant intake that

protects it from environmental and oxidative stress, exposure to UV and degeneration. It is also considered as a valuable remedy for hysteria and nervous disorders, and regarded to possess aphrodisiac (a substance that increases sexual desire, pleasure, or behavior) substances.

2. List of some of the laboratory evidences on health promoting bioactivities of hing (Figs. 2 and 3: Representative pictures of raw and powdered hing)

- Antibacterial activity of hydro-alcoholic extract of *Ferula asafoetida* plant on a pathogenic bacteria (*Listeria monocytogenes*), found in moist environment and can grow in refrigeration and other food preservation conditions, was evaluated using well established Disc Diffusion and Macro Dilution Methods using Ampicillin (10 microgram/disc) as a reference antimicrobial material. The data showed that the asafoetida extract possessed high antibiotic potential for *Listeria monocytogenes* [1].
- Antimicrobial activity in essential oils and oleo-gum-resin from asafoetida was demonstrated to be similar to chlorhexidine, a standard antibacterial drug [2].
- Organosulfur compounds and monoterpenes [sec-butyl (Z)-propenyl disulfide, sec-butyl (E)-propenyl disulfide, sec-butyl (Z)-propenyl trisulfide and sec-butyl (E)-propenyl trisulfide] and (alpha-pinene, beta-pinene and beta-phellandrene)] in asafoetida boost the immune system, activate phagocyte and neutrophil functions [3,4].
- Possess anti-leishmania activity and was suggested to be a natural remedy for leishmaniasis (sores on skin and/or several internal organs including spleen, liver, and bone marrow caused by *Leishmania* parasites) that are spread by the bite of phlebotomine sand flies [5].
- Anticancer activity demonstrated in cell models of breast cancer [6,7].
- Osteogenic activity supporting the formation of bone cells in cell culture system [8].
- Anti-inflammation activity that could be further promoted by combination with turmeric, traditionally been used for the treatment of inflammatory diseases, including ulcerative colitis (UC) and inflammatory bowel disease (IBD) [9].
- Protection of liver against oxidative damage in chemical-induced toxicity model [10]



- Suggested home remedy for diabetic mellitus (DM), a metabolic disorder caused by ineffective production of insulin in the pancreas (affecting ~500 million people and is a challenge for health and medicine sector worldwide). High blood sugar connects to life-threatening complications including diabetic retinopathy, nephropathy, atherosclerosis, cardiovascular and coronary heart diseases, hypertension, hyperlipidemia, foot damage, skin complications, hearing impairment, depression and Alzheimer's disease [11]
- Prevention of high-fat diet (HFD)-induced abnormal weight gain (anti-obesity potential) and hepatic steatosis in mice model [12].
- Potential remedy for neuroinflammation and ischemic stroke [13].
- Included in the list of antiviral medicinal plants in Ayurveda [14].

3. References

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