



Foeniculum Vulgare : A Comprehensive Review Of Its Therapeutic Uses, Pharmacological Action With Its Benefits.

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Abstract:

Secondary metabolites includes a plant as a valuable source with wide range, which can be used as Carminative, Digestive, Lactagogue and diuretic and in treating respiratory as well as gastrointestinal disorders. This study was designed to exhibit antithrombotic and hepatoprotective activities. The purpose of this is to highlight the chemical constituents and pharmacological effects of a foeniculum vulgare.



Fig.1 Foeniculum vulgare plant



Fig.2 Foeniculum vulgare fruit

Keywords: Foeniculum Vulgare, Therapeutic Uses, Pharmacological Action, Benefits.

1. FOENICULAM VULGARE :

Introduction :

The use of different parts of plants has been common since last many centuries using a natural medicines (herbal) is a beneficial cost effective method to treating a disease with a result of a experience from the past generations. All the culture in our world have extensive knowledge about using herbal medicine for treating a diseases or using a natural remedies with use of different parts of plants is now common in public health. Foeniculum vulgare is a aromatic plants belonging a family apiaceae. Foeniculum vulgare hardy, umbelliferous herb with its feathery leaves and also yellow flowers. Fennel seeds are anise like in aroma and are use as flavorings in baked good in search dishes like meat and fishes, ice cream, etc. The flowers of foeniculam vulgare are produced with terminal compounds umbels and its fruit is dry seeds along with 4-10mm long. Foeniculam vulgare is effective in diseases as like a helps to regulate blood, pressure, anxiety. Reduce water retention. Tea for constipation, indigestion. Seed for reduce asthma symptoms. Helps to purify blood . good for acne .

Foeniculum vulgare is also called as common fennel is an upright branching perennial that grows in vegetable and herb garden for its anise flavored foliage and seeds both which are commonly harvested or use for cooking. It is known by various names in different languages as in India. its known as fennel, sweet fennel, as well as in hindi its known as sounf, in Sanskrit it known as madhurika, in Bengali it known as a mauri, etc.

The fruit of *foeniculum vulgare* is half wide or less and surrounded with dry seeds and they are aromatic, stimulants and carminative.

2. THERAPEUTIC USES:

The pharmacological activities of fennel include following items,

Anti-bacterial Activity:

Fennel contains a linoleic acid, undecanal, oleic acid 1, 3-benzenedial, so it has a anti-bacterial activity.

Aqueous and organic extract of *foeniculum vulgare* shows activity against some of bacterial stains, so it has a antibacterial activity. Some chemical constituents from a *foeniculum vulgare* is like phenyl propanoid derivative - Dillapional was found to be as active antimicrobial principles.

Fennel is used to treat many bacterial, fungal, viral and mycobacterial infectious disease. Ethanol and water extracts of *foeniculum vulgare* have shown activity against *Campylobacter jejuni* and *Helicobacter pylori*. Some essential oil shows antibacterial effect against foodborne pathogens such as *E. coli*, *Bacillus megaterium*, *Staphylococcus aureus*, etc. and these are oils which are extracted from the fruits of *foeniculum vulgare*.

Anti-fungal activity:

The anti-fungal effects of *foeniculum vulgare* against *Sclerotinia sclerotiorum* observed based on survival of the microorganisms, it was investigated.

Chemical compositions of the plant extract antifungal activity. A study on herb antifungal effect showed significant antifungal activity in food waste such as *Aspergillus niger* and *Fusarium oxysporum* against a fungi. The essential oil of *foeniculum vulgare* has reported showing an inhibiting activity against *Aspergillus niger*, *Aspergillus flavus*, *Fusarium graminearum* and *Fusarium moniliforme*.

Anti-inflammatory activity:

The pharmacological effect of fennel plant, including anti-inflammatory activity such as it significantly increased plasma levels of high-density lipoprotein cholesterol as well as it reduces the level of malondialdehyde

(MDA) as a measure of lipids oxidation reaction. Oral administration of *foeniculum vulgare*'s fruit methanolic extract having capacity of showing an inhibitory effects against acute as well as subacute inflammatory disease for showing this anti-inflammatory effect against disease, the fruit of *foeniculum vulgare* should be taken till 200mg by oral administration.

Systemic symptoms accompanying primary dysmenorrhea were studied using double-blind clinical trial carried out on female students Shahid Beheshti University, Iran in reduction of pain by using the extract of *foeniculum vulgare*. The hot plate method was determined for determining the analgesic and anti-inflammatory activity of plants.

Anti-cancer activity:

The methanol extract of fennel increased a glutathione content in the liver, a tumor tissue of mice with cancer and also increased MDA levels and significantly reduce CAT activity. It results as it decreased ascites fluid and demonstrated methanol extract of fennel had significant anticancer activity against a breast cancer cells (MCF-7).

In liver cancer by a modulation of lipid peroxide and also increased antioxidant defence system and also inhibitory effect on free radicals.

The MMC affect the serum of uric acid, urea and creatinine (kidneys function) and liver function (GOT&GPT activities) which were improved by ingestion of fennel extract. Histopathological changes observed after treatment with anethole were comparable to standard cytotoxic drug.

Anti-diabetic activity:

The drug belongs from a family *Apiaceae* such a *foeniculum vulgare* shows an anti-diabetic activity. The study has result as exhaust diabetics can be useful for blood glucose control and in addition, its daily uses helpful for reducing chronic complications related with the disease diabetes. It was derived that fennel extract improve hyperglycemia in diabetic rate and this diabetic rate are that rates which were used for conducting a study of evaluating the effect of *foeniculum vulgare* in reduction of glucose level in blood with the help of streptocytosine-diabetic rates.

Diabetes mellitus an endocrine and metabolic disorder characterized by a chronic hyperglycemia produces multiple biochemical impairments and oxidative stress especially an increased susceptibility to lipid peroxidation that play role in the progression of the symptoms of diabetes. Diabetes is an example of a disease that has been treated with plant medicines as per research of since past some years that plants are used traditionally for diabetes have shown antidiabetic properties.

3. PHARMACOLOGICAL ACTION:

Effects on urinary system:

Ethanol fruit extract of foeniculum vulgare shows diuretic effects in rates. The diuretic effect of aqueous and 88% methanol extracts of foeniculum vulgare leaf was studied by using in rates with a different doses of aqueous and 80% methanol extract by oral administration and it result shows that increasing using a 200 or 400mg/kg doses treated on rates of aqueous and 80% methanol extract of foeniculum vulgare.

Foeniculum vulgare act as a diuretic too, in which a work by promoting expulsion of urine and urinary sodium from body and result as it help to reducing volume of blood which is circulating through the cardiovascular system.

Gastrointestinal effects:

The anti-ulcerogenic and antioxidant effects was evaluated in a ethanol induced gastric lesion in rats by using a aqueous extracts of foeniculum vulgare. The aqueous suspension of foeniculum vulgare was which protect a gastric ulcer was evaluated against a different acute gastric ulcer models, pyloric ligation, hypothermic restraint stress. A ethanolic fruit extract of foeniculum vulgare's administration by orally in rate caused a 33% increase of the collected bile volume that was statistically significant compared with control values. In collected bile which includes a bilirubin was similar in both treated and control groups.

With the aqueous extract of foeniculum vulgare showed remarkable antiulcerogenic effect against a including a gastric lesson in rates by using a ethanol and pre-treatment with using a aqueous extract of foeniculum vulgare it reduce a ethanol including a gastric damage which results a aqueous extract with highest and significantly in 300mg/kg compared with a centralized group of animals as well as additionally this extract increased a ascarbic acid and also decreased a whole blood malondialdehyde levels. So which results, a this aqueous extract of foeniculum vulgare clearly have protective effect against gastric mucosal lesion in rate which is methanol included.



Fig.3 Nutrition

4. BENEFITS:

As we know Foeniculum vulgare (fennel) it has carminative, expectorant and aromatic properties with some internal and external uses.

• Internal Uses:

- 1.Foeniculum vulgare is used as diuretic, antispasmodic, pain and fever reducer and also has antimicrobial properties.
- 2.It soothes the brochial tubes and has a mild estrogenic effect.
- 3.It relaxes the muscle lining in the digestive tract and helps to tackle problems like gas, indigestion, colic dyspepsia and reduce intestinal spasms.
- 4.It increased lactation in nursing mothes.
- 5.It is also useful in relieving menstrual problems and provide relief from the griping effect of laxatives.
- 6.The juice which is extracted from the fruit or herb is useful in relieving catarrh and cough of the respiratory tract in adults and children.
7. The roof of the plant is useful in relieving urinary disorders.
- 8.Fennel leaves are used as herb in salad and also snails and fish.
- 9.The seeds of the plant are used in flavouring biscuits, bread, staffing and sausage.

• External uses

- 1.Foeniculum vulgare can be used as a mouth was for relieving sore throat and gum diseases.
- 2.(Essential oils) It is known for its distinct licoric flavour and aroma. Today fennel oil can be internally to promote a healthy respiratory system.
- 3.Fennel seeds and oil are used in flavouring, fennel's complex aroma has also made it popular in soaps, candles and perfumes.
- 4.It is also used to prevent nausea.

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Fig.4 Essential Oil

5. CONCLUSION:

On a basic of this review we have write to show that extract of foeniculum vulgare passes different pharmacological properties such as anti-bacterial, anti-fungal, anti-inflammatory, anti-cancer, anti-diabetic activities. This plant shows medicinal properties deu to different chemical compounds depending on this we have considered that phenolic compound and fennel plant essence are the most important as well as most active compound of foeniculum vulgare plant. Though a study have been perform of anti-cancer effect on plant while a high percentage of worldwide death occurs various cancer effects. Most best studies have been conducted anti-material, anti-bacterial and fennel istrogenic effects in various experiments. Therefor it is needed that the future researches should be investigate on various medicinal uses of this plant.

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