Asafoetida, God’s Food, a Natural Medicine

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ABSTRACT

Introduction: Asafoetida is dried latex which is extracted from the taproot of many species of Ferula, a perennial herb native to the East Mediterranean and Central Asian regions. It is also a common ingredient in some cuisines. Methods: A literature search was conducted in Science Direct, Google, Google Scholar, PubMed, Wiley Online Library, Springer and Medline. Results: The most important health benefits consist of reducing bloating, helping to relieve asthma, lower blood pressure and menstrual pain, as well as treating headaches, insect bites, indigestion and as a laxative. It is good for diabetic people, treats nerve disorders, helps fight free radicals, aids in reducing acne, treats corns and calluses and reduces hair loss. Conclusion: This review article allowed verifying asafoetida as sources of compounds with valuable nutritional and bioactive properties with great ability for incorporation into foods with functional properties.

Key words: Medicinal plant, Health benefits, Asthma, Anti-cancer, Headaches.

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INTRODUCTION

Traditional medicinal plants are an essential part of the health care system in most Asian countries,¹⁹ and they rely on natural products which has been playing a significant role in maintaining health in protection and disease control for many years.¹⁰-¹² The aim of this mini-review was to survey the most important health benefits and pharmacological characteristics of asafoetida.

ASAFOETIDA

Asafoetida (Ferula asafoetida) is an old traditional phytomedicine used to treat various diseases in different countries.¹³,¹⁴ Several different chemical compounds including coumarins, polysulfides and sugars have been isolated from it.¹⁵,¹⁶ F. asafoetida is one of the most important native species of the genus Ferula, which is native to Iran, India and Afghanistan. It is commonly known as ferula and belongs to the family Umbelliferae (Apiaceae). In Iranian folk medicine, asafoetida is mostly used as the analgesic agent, antispasmodic, carminative and diuretic.¹⁷ The oleo-gum-resin obtained from the roots possesses antiviral, anti-diabetic, anti-inflammatory, anti-mutagenic and antifungal activities.¹⁸,¹⁹ The roots and latex of F. assa-foetida yielded various mixed vinyl disulfides, including two novel asadisulfide-type esters.²⁰ F. assa-foetida has a long history for treatment of infectious diseases including influenza.²² The highest accumulations of sulphur compounds and essential oil in asafoetida are related to different mean annual temperatures and altitude.²¹ The gum asafoetida, is composed of carbohydrate (67.39% w/w) with a monosaccharide distribution of 11.5: 5.9: 2.3:1 between Gal, Ara, Rha and GlcA (molar ration) and proteins (arabinogalactan protein). The most important compounds in Oleo gum resin were found most abundantly in the samples. These were (E)-1-propenyl sec-butyl disulfide (13.66–49.35%), β-pinene (1.06–21.18%), (Z)-1-propenyl sec-butyl disulfide (2.02–15.29%), α-pinene (2.04–17.61%), thiophene disulfide (13.66–49.35%), β-pinene (1.06–21.18%), (10-17%).²³ The most important characteristics of Ferula assa-foetida is shown in Table 1. The most important reported functions of asafoetida are presented in Table 2. The most important pharmacological activities of Ferula assa-foetida L. are shown in Table 3. The image of Asafoetida (Ferulaassa-foetida) is shown in Figure 1.

Table 1: The most important characteristics of Ferula asafoetida.

<table>
<thead>
<tr>
<th>Table 1: The most important characteristics of Ferula asafoetida.</th>
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<tbody>
<tr>
<td>It is a monoecious, herbaceous, perennial plant.</td>
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<tr>
<td>This giant plant is 2-3 m tall with a circular mass of 30–40 cm.</td>
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<td>Leaves compound, 2-4 pinate very large and bipinnate, pubescent; segments oblong entire, obtuse.</td>
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<tr>
<td>Flowers are pale greenish yellow produced in large compound umbels, with numerous stem leaves in florescence densely pubescent.</td>
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<tr>
<td>Petals whitish yellow, persistent.</td>
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<tr>
<td>Fruits broadly oblong to suborbicular about 1 cm long and 8 mm broad, winged and oval, flat, thin, reddish brown and have a milky juice.</td>
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<tr>
<td>They yield a resin similar to that of stems.</td>
</tr>
<tr>
<td>Root is a large pulpy thick tap-root.</td>
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<tr>
<td>All parts of the plant have the distinctive foetid smell.</td>
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<tr>
<td>Its main components include resin (40-46%), gum (25%) and essential oil (10-17%).</td>
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<td>Its resin fraction contains ferulic acid, esters, coumarins and other terpenoids.</td>
</tr>
<tr>
<td>Its gum contains glucose, galactose, l-arabinose, rhamnose, glucuronic acid, polysaccharides glycoproteins and umbelliferone.</td>
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<tr>
<td>The main compounds of its oil contain α-pinene, β-pinene, germacrene B, myrcene, limonene, bisabolol and quer cetin.</td>
</tr>
<tr>
<td>Angluhez (Farsi); asafetida; Spanish; asafoetida; awei (Chinese); aza (Greek); devil’s dung; ferule persique or merde du diable (French); halit or tyib (Arabic); hing (Hindi); muuje (Swahili); stinksasant or teufelsdreck (German); stinking gum are other names of this traditional herbal medicine.</td>
</tr>
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</table>

Table 2: The most important pharmacological activities of Ferula assafoetida L. are shown in Table 3. The image of Asafoetida (Ferulaassafoetida) is shown in Figure 1.
CONCLUSION

Asafoetida has a prominent place in traditional medicine due to its carminative, anti-viral, anti-bacterial, anti-inflammatory, sedative and diuretic properties. Its most important health benefits are reduce bloating and other stomach problems, helps to relieve asthma, lower blood pressure levels, relieve menstrual pain, reduce headaches, reduce acne, a good hair conditioner, anticancer effects, antibacterial, antifungal and antimicrobial effects and protect brain health. The active ingredients in F. asafoetida can be developed in combination as potent drugs, which may exhibit better effects compare to other compounds.

ACKNOWLEDGEMENT

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CONFLICT OF INTEREST

No potential conflict of interest was reported by the authors.

ABBREVIATIONS

TCM: Traditional Chinese medicine.

REFERENCES

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The active ingredients in *F. assa-foetida* can be developed in combination as potent drugs, which may exhibit better effects compare to other compounds.

**SUMMARY**

- Asafoetida has a prominent place in traditional medicine due to its carminative, anti-viral, anti-bacterial, anti-inflammatory, sedative and diuretic properties.
- Its most important health benefits are reduce bloating and other stomach problems, helps to relieve asthma, lower blood pressure levels, relieve menstrual pain, reduce headaches, reduce acne, a good hair conditioner, anticancer effects, antibacterial, antifungal and antimicrobial effects, and protect brain health.
- The active ingredients in *F. assa-foetida* can be developed in combination as potent drugs, which may exhibit better effects compare to other compounds.

**PICTORIAL ABSTRACT**

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