Phytochemical Analysis of a Traditional Medicinal plant - Gnidia glauca

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Abstract: Present investigation deals with phytochemical evaluation of Gnidia glauca (FRESEN) GILG.. Ethanol, methanol, and ethyl acetate were used for preparation of test extracts. The Gnidia glauca leaf extracts were found to be rich source of phytochemicals like alkaloids, saponin, steroids, tannin, flavonoids, diterpenes, cardial glycosides, phenols and phytosterol. Among the extracts ethanolic and methanolic extract of leaves of Gnidia glauca were found to be rich in secondary metabolites than ethyl acetate. Phytochemicals from Gnidia glauca shows several secondary metabolites with potential medicinal properties in drug design and hence requires further study to testify the traditional claims of its curative properties standardize the doses and extrapolate their effects on humans.

Keywords: Gnidia glauca, plant extract, phytochemical analysis

Introduction

Search of complementary and alternative medicine has gained a thrust in the recent decade due to the pronounced side effects and health hazards of the chemically synthesized drugs. Hereby, a comprehensive knowledge about the traditionally used medicinal plants is indispensable for exploration of its novel bioactive components. One of such comparatively less explored medicinal plant is Gnidia glauca.

Gnidia glauca (FRESEN) GILG. is commonly known as “Rametha” or Datpadi. It belonmg to the family Thymelaeaceae. It is found in evergreen forests in the Western Ghats- throughout India, Sri Lanka and Africa (Kharat et.al., 2013). It is a small tree reaching an height of about 7 m (Plate 1). Bark brownish, leaves are simple, alternate, petiolate, elliptic, acute apex, entire margin. Flowers are yellow in colour, pedicellate with terminal heads and silky yellow bracts (Plate 2) (Engler, 1894).
Although, it has folkloric, traditional phytomedicinal and agrochemical applications in various parts of the world, still there are no available scientific validations or evidences to support the fact. In African medicine it is used for treatment of abdominal pain, cancers, wounds, snake bites, sore throat and burns. It is also well known for its piscicidal, insecticidal, molluscicidal and even homicidal activity for its use as arrow poisons. Similarly, its antineoplastic activity is reported to be remarkably superior (Rao et. al., 2013). *G. glauca* is used as traditional phytomedicine for treating sore throat, abdominal pain, wounds, burns and snake bites. Leaves have been applied to treat the contusions, swellings, back ache and joint aches. It has been shown that several *Gnidia* species possess remarkable antineoplastic activity (Ghosh et. al., 2012). It is used as an antiviral agent against rabies in Ethiopia (Tkelehaymanot and Giday, 2007). However, till date there is no comprehensive information on the plant.
Materials and Methods

Collection and Authentication: Fresh and healthy leaves of *Gnidia glauca* were collected from Mahabaleshwar, India in December 2015. The material was washed thoroughly 2-3 times with water to remove extraneous material like soil or dust and then was spread on blotting paper. It was later kept for shade drying for 6-8 days. The material was then finely powdered and sieved through mesh size 85μm and stored in air tight container until further use. Plant material of *Gnidia glauca* (FRESEN) GILG. was authenticated at Blatter herbarium, St. Xavier's College, Mumbai, India. Acc. No. (158, M.R. Almeida).

Preparation of extracts for phytochemical analysis: 5 gms of dried powder of leaves of *Gnidia glauca* was mixed with 100 ml each of ethanol, methanol and ethyl acetate separately. The flasks were kept overnight with occasional stirring for extracting the constituents in extract. They were filtered through Whatmans filter paper no.1. After filtration, the filtrate was used for phytochemical testing (Kokate et al., 2005; Harborne, 2005).

Observations

Table 1: Phytochemical analysis of various extracts of *Gnidia glauca*

<table>
<thead>
<tr>
<th>Phytoconstituents</th>
<th>Leaf Extracts</th>
<th>ETOH</th>
<th>MEOH</th>
<th>ETOAC</th>
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<tr>
<td>Acid compounds</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Aleurone Grains</td>
<td>-</td>
<td>+</td>
<td>+</td>
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<td>Alkaloids</td>
<td>+</td>
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</table>
Amino acids |  |
---|---|
Proteins | + |
Carbohydrates | + |
Starch | + |
Glycosides (Killer-Kinliani Test) | + |
Mucilage | + |
Flavonoids | + |
Tannins | + |
Saponins (Frothin Test) | |
Essential Oils | |
Resins | |

ETOH: Ethanol, MEOH: Methanol, ETOAC: Ethyl Acetate
+ = Present; - = Absent

**Results**

Ethanolic extract showed presence of acid compounds, aleurone grains, alkaloids, glycosides, mucilage, flavonoids and tannins. Methanolic extract showed presence of acid compounds, aleurone grains, alkaloids, proteins, carbohydrates, starch, glycosides, mucilage, flavonoids and tannins. Ethyl acetate extract revealed acid compounds, aleurone grains, alkaloids, carbohydrates, starch, glycosides, mucilage, flavonoids and tannins.

**Discussion and Conclusion:**

Secondary phytochemical is a natural bio-active compound found in plants in different parts which act as defence mechanism not only to them but if extracted and standardized relieves many ailments in humans. Preliminary phytochemical analysis was carried out to find out which groups of secondary metabolites are present in the plant material. Analysis of leaves of *Gnidia glauca* revealed presence of therapeutically important active constituents like alkaloids, terpenoids, sterols, flavonoids majorly in methanolic and ethanolic extracts. The study thus reveals that plant under study has many therapeutically important secondary metabolites and possesses tremendous potential to cure number of ailments. Though further studies like pharmacognostic characters, physico-chemical analysis and standardization of the active drugs is essential which is a part of future study.

**Bibliography:**


