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**Pharmacognostical and preliminary phytochemical studies of  
*Passiflora foetida* .**

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**Abstract**

The plant *Passiflora foetida* (grandilla) has been used mainly for asthma and various neurological disorders by the traditional medicinal practitioners of Chittor District. Since proper information regarding this plant is not available, our efforts were devoted to fix the pharmacognostical parameters and preliminary phytochemical studies of *Passiflora foetid*. An attempt was made to fix the macroscopical, microscopical parameters of the leaf, quantitative microscopy, physical constants, behaviour of the powder with chemical reagents and preliminary qualitative phytochemical studies of *Passiflora foetida* were investigated. The phytochemical tests

revealed the presence of sterols, flavanoids and carbohydrates.

**Keywords :** *Passiflora foetida*, depression, traditional medicine

**Introduction**

The traditional medicinal practitioners of Chittor district, Andhra Pradesh, use the plant *Passiflora foetida* (*Passifloraceae*), commonly known as granadilla to treat various neurological disorders<sup>1</sup>. According to Suriname Practice, the decoction of leaf is used for nervous disorders<sup>2</sup>. The decoction of the root and leaf is used for giddiness as emmenagogue<sup>3</sup>, headache, asthma and hysteria<sup>4, 5, 6</sup>.

## Materials And Methods

The leaves of *Passiflora foetida* were collected near the foothills of Tirumala, Tirupathi, Andhra Pradesh and was identified by botanist, Dr. Madhav Shetty, S.V. University, Tirupathi. The voucher specimen was kept for further reference. The macroscopy of the leaf was observed and the results <sup>7</sup>are reported in table I. The leaves were collected, shade dried and coarsely powdered. The powder was subjected

to various physical constants<sup>8</sup> and the results are tabulated in table II. The behaviour of the powder towards various chemical reagents and its response under UV .light was observed and preliminary phytochemical screening<sup>9</sup> were reported in table III&IV. As part of quantitative microscopy, stomatal number index, stomatal number, vein islet and vein termination were determined and given in table V.

**MACROSCOPY :**  
**Table I**

Particulars	Observation
Leaf shape / margin	3 lobed shallow halfway to the mid-vein/ entire
Apex	acute
Base	Sub cordate
Arrangement	alternate
Length	5-10cm
Petiole	2-5cm
Surface	Leathery
Stem	Hispid with tendril
Flower	Solitary in axil 4-5 cm
Fruit	Yellow to orange globose shaped with many seeds embedded in pulp

## MICROSCOPY (Fig no:1)

### T.S. of the leaf showed

1. **Upper epidermis** : single layered epidermal cells, covered by a thin cuticle.
2. **Trichome**: single simple, glandular trichome were seen on both sides of the epidermal cells.
3. **Mesophyll**: below the upper epidermis , there was single layer palisade parenchyma cells and scattered spongy parachyma which were filled with chlorophyll

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4. **Stomata:** Ranunculaceous type
5. **Lower epidermis :** single layered epidermal cells
6. **Vascular bundle :** covered by a layer of sclerechymatous tissue xylem showing endarch position

**Quantitative microscopy :**  
**Table II**

Particulars	Observation found in <i>Passiflora foetida</i>
Stomatal number (upper epidermis )	--
Stomatal number (lower epidermis)/ type	41/Ranunculaceous
Stomatal index (upper epidermis)	--
Stomatal index (lower epidermis)	30.7
Vein islet number	23
Vein termination number	17
Length of trichome	0.909 $\mu$

**Physical constants :**  
**Table III**

Particulars	Result
Petroleum ether extractive.	5.45%
Alcohol soluble extractive	5.66%
Water soluble extractive	9.54%
Total ash value	10.78%
Acid insoluble ash	0.07%
Water soluble ash	4.5%

**Behaviour of the powder with different chemical reagents :**  
**Table IV**

No	Treatment	Colour observed under visible light	Colour observed under 256 nm	Colour observed under 356 nm
1	Powder as such	Dull green	No fluorescence	No fluorescence
2	Powder + picric acid	Yellow	No fluorescence	Dark green
3	Powder +hydrochloric acid	Dark green	No fluorescence	Dark green
4	Powder +sulphuric acid	Dull green	No fluorescence	Dull green
5	Powder + nitric acid	dull brown	No fluorescence	Dark brown
6	Powder+gl.acetic acid	Dull yellow	No fluorescence	Light red fluorescence
7	Powder +ferric chloride solution (aqueous)	Pale yellow	No fluorescence	Green fluorescence
8	Powder + iodine solution	Pale brown	No fluorescence	Dark brown
9	Powder + sodium hydroxide (aqueous)	Pale yellow	No fluorescence	Yellow
10	Powder + sodium hydroxide (methanol)	Dark yellow	No fluorescence	Orange fluorescence
11	Powder +hydrochloric acid+ water	Dull green	No fluorescence	Dark green
12	Powder +sulphuric acid + water	Dull green	No fluorescence	Dark green
13	Powder + nitric acid + water	No colour change	No fluorescence	Dark brown

**Phytochemical screening :**  
**Table V**

No	Tests	Powder	Ethanol extract	Aqueous extract
1	Tests for alkaloids	-	-	-
2	Tests for carbohydrates	+	+	+
3	Tests for sterols	+	-	-
4	Tests for proteins	-	-	-
5	Tests for saponins	-	-	-
6	Tests for flavanoids	-	+	+
7	Tests for tannins	-	-	-
8	Tests for gum mucilage	-	-	-

**Result and Discussion :**

*Passiflora foetida* is found to be effective in variety of ailments such as hysteria, asthma headache and insomnia. Pharmacognostical studies of the leaf was carried out in order to identify the

correct identification of this plant and to differentiate the closely related other species of *Passiflora*. These parameters may be helpful in identification of the plant.

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