



**ANALYTICAL STUDY OF GUDUCHI (*TINOSPORA CORDIFOLIA* WILLD. MIERS)
FRESH STEM**

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ABSTRACT

Tinospora cordifolia (Giloy/Guduchi) belonging to the family menispermaceae, is a large extensively spreading glabrous, perennial deciduous twiner with succulent stems and papery bark. It is widely used in Ayurvedic system of medicine "Rasayanas" to the immune system and the body resistance against infections. In modern medicine, *T. cordifolia* is used for the treatment of general weakness, fever, dyspepsia, dysentery, gonorrhoea, urinary diseases, viral hepatitis and anaemia. The stems of different thickness (diameter) are being used by the pharmaceutical industries for preparation of various herbal formulations without having information about concentration of phytoconstituents. The present study was carried out with the objective to study the variation in phytoconstituents among *T. cordifolia* stems were analyzed for their phytoconstituents. Phytochemical screening revealed the presence of phenols, flavanoids, alkaloids, saponins, cardiac glycosides, steroids, carbohydrate and proteins.

KEYWORDS: Analytical, Guduchi, Ash Value, Pharmacology, Stem.

INTRODUCTION

It is essential to analyze the prepared drugs for standardization, so that quality of product can be established. Chemical analysis of any drug should be known well before experimental and clinical trials. Chemical study ensures not only chemical constituents but also tells the standards of any preparation. It not only gives the standards of the product but indirectly gives suggestions for further advancement if required. It is an imminent need for a well coordinated research plan involving physicochemical study of drug in present era. Analytical study was carried out to evaluate the Organoleptic and Physico-chemical parameters of test drug.

AIMS AND OBJECTIVES

- To analyze the sample of *Guduchi Ghana* by utilizing suitable parameters.

MATERIALS AND METHODS

The drug *Guduchi* (*Tinospora cordifolia* Willd. Miers) was collected from the Gir Forest of Junagadha. Placebo-Wheat flour was provided by the Pharmacy of G.A.U. *Guduchi* stems were identified and authenticated by Pharmacognosy Laboratory, I.P.G.T. & R.A. Then *Guduchi Ghana* was prepared in Pharmacy of G.A.U., under the guidance of Department of Rasa Sashsta and bhaishjya kalpana. Capsule filling of *Guduchi Ghana* and placebo was done in Laxmi Ayurveda Pharmacy, Jamnagar and capsules were submitted in Pharmacy of G.A.U. Uncoded test drug was collected from pharmacy of G.A.U. and used for the analytical study.

PHYSICO-CHEMICAL PARAMETERS

Table 1: Physico-Chemical Parameters for *Guduchi Ghana*.

1. Loss on drying	2. Ash value
3. pH Value	4. Water soluble extractive
5. Alcohol soluble extractive	6. Acid insoluble ash

1. Loss on drying (LOD)^[1]: 2 gram of sample drug was taken in a pre-weighed dried petridish. It was dried in an oven at 105°C until reaching a constant weight. The petridish was taken out; self cooled, and weighed immediately. The weight loss i.e. loss on drying was calculated and expressed as % w/w.

2. Ash value^[2]: 2 gram accurately weighed sample drug was taken in a pre weighed dried crucible. It was incinerated in a muffle furnace up to 450°C, until it was free from carbon. The crucible was taken out, self cooled and weighed immediately. From the weight of the ash, the 'ash value' was derived with reference to the air dried drug. It was calculated and expressed as % w/w.

3. pH Value^[3]: 5 gram of test drug was weighed and taken in a conical flask. Then it was added with 50 ml accurately measured water and stirred well for few minutes; this solution was kept for some time and then filtered it through filter paper and the filtered solution was taken in a beaker. Electrode rinsed with distilled water was introduced into the test solution kept in a small beaker and the pH value of solution was read.

4. Water Soluble Extractive: 5 gram of the sample drug was weighed accurately and taken in a beaker. 100 ml of distilled water was added to it and kept covered overnight. Next day, it was filtered. 20 ml of the filtrate was accurately measured with a pipette and transferred to the already weighed evaporating dish. The evaporating dish was placed on a water bath for evaporation of the water. After evaporation of the water it was dried in an oven, allowed self cooling and weighed immediately. From the weight of the residue obtained, the percentage of water soluble extractive was calculated and expressed as % w/w.

5. Alcohol Soluble Extractive: 2.5 gm sample drug was weighed accurately and taken in a beaker. 50 ml methanol was added to it and kept covered overnight. Remaining procedure was same as water soluble extract method. From the weight of the residue obtained, the percentage of alcohol soluble extractive was calculated and expressed as % w/w.

6. Acid insoluble ash: The ash of the sample drug was taken in a beaker and about 25 ml of 6NHCl was added and boiled for 5 minutes. It was then filtered with the help of ash less filter paper and washed with hot water till it was free from chloride. Then the filter paper was placed in previously weighed crucible and incinerated. The crucible was taken out, self cooled and weighed immediately. From the weight of the ash, the 'acid insoluble ash value' was derived with reference to the air dried drug. It was calculated and expressed as % w/w.

Table 2: Showing Organoleptic parameters of Guduchi Ghana.

No.	Parameter	Character observed
1.	Color	Brownish
2.	Taste	Brownish
3.	Odor	Not specific
4.	Touch	Smooth

Table 3: Physico-Chemical Parameters of Guduchi Ghana.

No.	Parameters	Character observed
1.	Loss on drying at 105°C	8.05% w/w
2.	Total ash	14.23% w/w
3.	pH of 5% aqueous solution	6.04
4.	Water soluble extractive	57.2% w/w
5.	Alcohol soluble extractive	28.64% w/w
6.	Acid insoluble ash	0.25% w/w

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