



Tinospora Cordifolia: Formulation And Evaluation Of Herbal Tea

Prajakta Ambulkar¹, Priyanka Bandgar², Shubham Barhanpure³, Ajanta Totre⁴

¹ last year B pharm St. Wilfred's Institute Of Pharmacy, Panvel, Navi Mumbai.

² last year B pharm St. Wilfred's Institute Of Pharmacy, Panvel, Navi Mumbai.

³ last year B pharm St. Wilfred's Institute Of Pharmacy, Panvel, Navi Mumbai.

⁴ Assistant professor Department of Pharmacognosy St. Wilfred's Institute Of Pharmacy, Panvel, Navi Mumbai.

Corresponding Author- Prajakta Ambulkar

Email- pyambulkar@gmail.com

DOI- 10.5281/zenodo.7776758

Abstract

Tea is the most generally consumed beverage. Tea's olfactory allure is a crucial factor to take into account when developing new products. Tea in general and herbal tea in particular are gaining consumer attention due to awareness of health benefits derived from their consumption. Different boiling practices are used by consumers all over the world to prepare their tea. The two most popular techniques for making tea are with loose tea and tea bags. However, because of their ease and convenience, tea bags are growing in popularity for tea brewing all over the globe. There are several kinds of herbal teas that have been used for their medicinal properties. The aim of present study is to prepare herbal tea with new combination of medicinal plants. An important herbal medication in the Indian System of Medicine is *Tinospora cordifolia* (ISM). The methanol stem extract of *T. cordifolia* is being used for their Immunomodulatory activity which helps in preventing and healing many diseases. It has been demonstrated that *T. cordifolia* can stimulate and regulate the immune system.

Keywords : Herbal tea, *Tinospora cordifolia*, Medicinal properties, Phytochemical tests, Evaluation parameters,

Introduction

Medicinal plants are those that produce biologically active chemicals that have healing and therapeutic effects. Medicinal plants consists of various phytochemical secondary metabolites such as tannins, saponins, alkaloids, cardiac glycosides, steroids and phenolic compounds. Tea is used as a popular beverage worldwide. Unlike other forms of tea, herbal teas do not contain caffeine. Herbal tea is essentially an herbal mixture made from leaves, stem, roots and various other parts of plants. Scientific evidence of the health and medical effects of herbal tea on consumption provides digestion, mind relaxation and other benefits. *Tinospora cordifolia* is a large deciduous, creeping shrub belonging to the family Menispermaceae. It is native to the tropical regions of Sri Lanka, India, and Myanmar. It is commonly known as Guduchi, Giloy, Amrita, Gulvel. According to Drugs and Cosmetic Act of India (1940), *T. cordifolia* is

considered as an ayurvedic drug. All parts of this plant like fruits, leaves, seeds and stems have various medicinal property. Most commonly stem is used to treat different types of diseases. *T. cordifolia* shows many medicinal properties like immunomodulatory, antibiotic, anticancer, anti-spasmodic, anti-microbial, anti-osteoporotic, anti-inflammatory, anti-arthritis, anti-allergic, anti-diabetic. The stem is used to treat fever, urinary infections, and dyspepsia. The bitter principle present shows several medicinal applications. The aim of the study is to prepare herbal tea bag of *T. cordifolia*.

Phytochemical test :

- Keller killani test (Test for deoxysugars) :- To 2ml extract, add glacial acetic acid, one drop 5% FeCl₃ and conc. H₂SO₄. Reddish brown colour appears at junction of the two liquid layers and upper layer appears bluish green.

- Modified Borntrager's test (for C-glycosides) :- To 5ml extract, add 5ml 5% FeCl₃ and 5ml dil. HCl. Heat for 5 min in boiling water bath. Add benzene or another organic solvent after

cooling.. Shake well. Separate organic layer, add equal dilute ammonia. Ammonical layer shows pinkish red colour.

Materials and Methods

Sr. No.	Synonyms	Uses
1	Gulvel	Immunomodulator
2	Kalmi cinnamon	Flavouring
3	Sacred basil	Anti-oxidant
4	Gingerol	Expectorant
5	Malabar grass	For essence

Collection of plants :

1. ***T. cordifolia*** : The fresh whole plant of *T. cordifolia* was collected from the local area. The leaves and stem were separated. Wash the stem thoughtly in water to remove dirt and soil. Allow to drain the water. Now cut them into small pieces of size about 0.5 cm using stainless steel knife. For shade dry, material placed in shade for 10-15 days until they become dry as required. Once drying process was done, the dry weights were powdered using a laboratory/ household blender.
2. **Cinnamon and Dried Ginger** : Brought from the market and grounded to make fine powder.

3. **Lemon grass and Tulsi** : Brought form the market and wash thoroughly to remove dust. This is placed on a clean surface to dry in environmental temperature. After drying process is completed it is blended to obtain coarse powder.

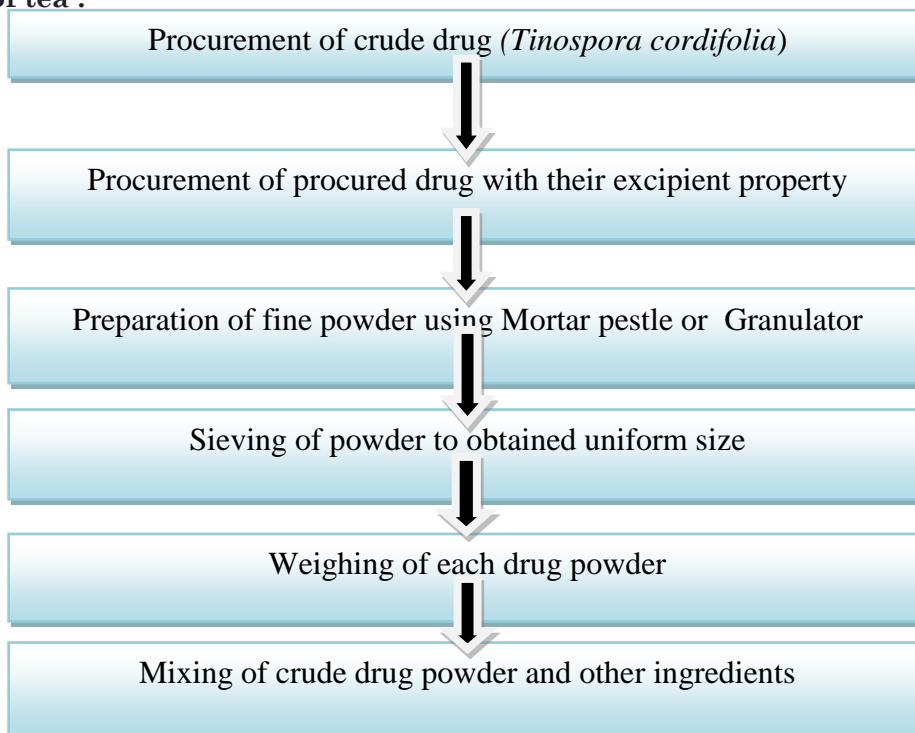
Preperation of Extract :

Soxhlet Extraction apparatus is used for extraction of *T. cordifolia* using methanol as solvent.

Method for Preparing powder

- a. Grinding of plant material to obtain powder.
- b. Sieving of powder to obtained uniform size.
- c. Weighing of each drug powder.
- d. Mixing of crude drug powder and other ingredients.
- e. Filling of powder in empty tea bag.

Formulation of tea :



Observations/ Result :

- ❖ **Keller killani test (test for deoxysugars)** : Reddish brown colour appears at junction of the two liquid layers. Positive result is obtained.
- ❖ **Modified Borntrager's test (for C-glycosides)** : Separate the organic solvent and Ammonical layer shows pinkish red colour.

Evaluation paramters :**A) Organoleptic parameters :**

- 1) **Colour** - Yellowish Orange
- 2) **Odour** - Aromatic
- 3) **Taste** – Bittersweet

B) Physico-chemical parameters :

- a) **pH value** :- pH = 6.66 Take few gram of sample in a beaker add few ml of water in it calculate pH of sample by using pH meter.
- b) **Moisture content and stability testing** :- A 3g quantity of herbal tea bags material was weighted out into an crucible from five randomly selected tea bags. Crucible was placed into an oven at $105 \pm 2^{\circ}$ C until no change in weight was obtained.

To ensure stability of herbal tea bag during storage which can be maintained by controlling moisture content below 10%

Discusion : Tea in general and herbal tea in particular are gaining consumer attention due to awareness of health benefits derived from their consumption. In present study we prepared herbal tea bag containing *Tinospora cordifolia* with other excipient having various medicinal properties. After formulation of tea bag evaluation tests were performed.

Acknowledgement :- We take this opportunity to convey our heartfelt and sincere thanks to our mentor and guide, **MRS AJANTA TOTRE** ma'am Assistant Professor Department, Pharmacognosy. Under her able leadership, constant support, guidance and immense subject knowledge, this dissertation has been accomplished. We would also like to thanks. **DR. AKSHAY MESHRAM** sir, he helped us with our queries and guided us in smooth completion of this research so our deepest thanks goes to him for providing the facilities required for carrying out this research Work. We would also like to express our gratitude to **DR. DEENANATH JHADE**, Principle of St. Wilfred's Institute Of Pharmacy, Panvel for

being instrumental in shaping our career and guiding us.

References :

- 1.De-Heer, Nicholas Ekow Anesi. *Formulation and sensory evaluation of herb tea from Moringa oleifera, Hibiscus sabdariffa and Cymbopogon citratus*. Diss. 2011.
- 2.Ravikumar, Chandini. "Review on herbal teas." *Journal of Pharmaceutical Sciences and Research* 6.5 (2014): 236.
- 3.Vidya H R, Manasa R, Santosha D U, Shivananjappa M, Shekhara Naik R. Immunomodulatory activity of *Tinospora cordifolia*. *IP J Nutr Metab Health Sci* 2022;5(3):103-108.
- 4.Nazir, Iqra, and Rikhi S. Chauhan. "Qualitative phytochemical analysis of *Tinospora cordifolia* and *Withania somnifera*." *Pharma Innov. J* 7.10 (2018): 333-336.
5. Singh, Deepika, and Prabir K. Chaudhuri. "Chemistry and pharmacology of *Tinospora cordifolia*." *Natural product communications* 12.2 (2017): 1934578X1701200240.
- 6.Saha, Soham, and Shyamasree Ghosh. "Tinospora cordifolia: One plant, many roles." *Ancient science of life* vol. 31,4 (2012): 151-9. doi:10.4103/0257-7941.107344
- 7.Tiwari, Prashant, et al. "Phytochemistry and pharmacology of *Tinospora cordifolia*: A review." *Systematic Reviews in Pharmacy* 9.1 (2018): 70-78.
- 8.Pandey, M. U. K. E. S. H. W. A. R., et al. "Tinospora cordifolia: A climbing shrub in health care management." *Int J Pharm Bio Sci* 3.4 (2012): 612-628.
- 9.Bharathi, C.,et al. "A review on medicinal properties of *Tinospora cordifolia*." *International Journal of Scientific Research and Review* 7.12 (2018): 585-598.
- 10.Jaiswal, Archi, et al. "Studies on drying characteristics of (*Tinospora cordifolia*) giloy stem." *Journal of Pharmacognosy and Phytochemistry* 10.1 (2021): 2357-2359.
11. Mishra, Priyanka, et al. "Phytochemical analysis and assessment of in vitro antibacterial activity of *Tinospora cordifolia*." *International Journal of Current Microbiology and Applied Sciences* 3.3 (2014): 224-234.
- 12.Shamim, N., et al. "The Accelerated Stability Study of Herbal Tea Bag-An Ayurvedic Formulation." *UGC Care Group J* 10 (2020).

13. Builders, Philip F., Boma B. Mohammed, and Yahaya Z. Sule. "Preparation and evaluation of the physicochemical and stability properties of three herbal tea blends

derived from four native herbs." *Journal of Phytomedicine and Therapeutics* 19.2 (2020): 448-465.

Tables : Table 1: Phytochemical tests

Chemical Constituents	Methanol Extract
Alkaloids	+
Carbohydrates	+
Cardiac glycosides	+
Flavonoids	+
Phenols	+
Amino acids and proteins	+
Saponins	-
Steroids	+
Tannins	-
Terpenoids	-

Table 2: Formula for herbal tea

Sr. No.	Ingredients	Quantity(gm)
1	Tinospora cordifolia	1
2	Cinnamomum zelyanicum	0.2
3	Ocium santum	0.1
4	Zingiber officinale	0.2
5	Cymbopogon Flexuosus	0.5

Table 3: Evaluation parameter

Sr. No.	Evaluation parameter	Result
1	pH value	6.66
2	Moisture content	7%

Figures :



Fig.1a-stem of T. cordifolia; 1b-fruit T.cordifolia; 1c-Cinnamon; 1d-Tulsi; 1e-ginger; 1f-lemmon grass.

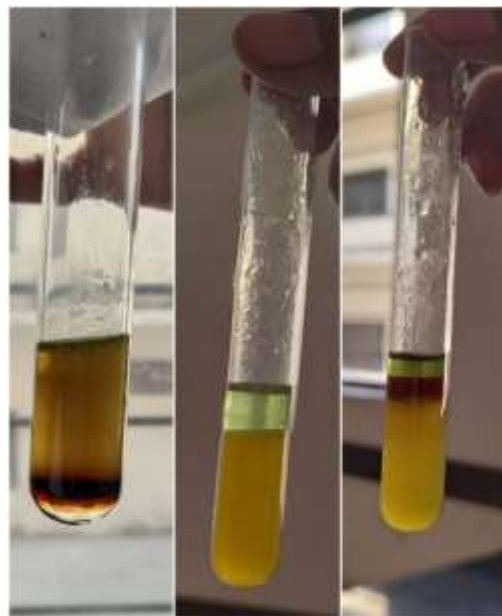


Fig.2a- Keller killani test;
Fig.2b,2c-Modified borntreger's test



Fig.3-Soxhlet Extraction Apparatus



Fig.4- pH meter