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STUDY ON ORGANOLEPTIC CHARACTERS & FLUORESCENCE STUDIES OF PLANTS *TINOSPORA CORDIFOLIA* AND *TRIGONELLA FOENUM GRAECUM*

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ABSTRACT

The present study for the two study plants *Tinospora cordifolia* and *Trigonella foenum graecum* which includes and in depth analysis of various physico-phytochemical, qualitative phyto constituents, elements present qualitatively and quantitatively are seen. The colour variation are recorded in the powder of two plants which are treated with many reagents individually like 1N NaOH, 1 N HCl, 50% H_2SO_4 , Conc.HNO_3, 5% $FeCl_3$, Iodine solution, 1 N NH_3, Sodium Nitro prusside , 5% KOH, Picric acid and Acetic acid are seen in the day light and are UV light like 254 nm and 365 nm. Slight variations are seen for certain reagents. For example for *Tinospora cordifolia* as such dark green in day light, greenish brown in UV 254 nm and light brown in UV 365 nm .Whereaswith 5% $FeCl_3$ in day light it show chocolate brown colour and reddish brown at 254 nm and green colour at 365 nm. Similarly for *Trigonellafoenum graecum* powder as such yellow colour in day light, greenish yellow at 254 nm and brown colour at 365 nm. Whereas powder with 1N NH_3 showsyellowish brown colour in day light, brown colour at 254 nm dark brown colour at 365nm. By using the two study plants extracts individually, the synthesis of silver nano particles and its anti-microbial study are studied. Authentication and standardization of study plants by HPTLC finger print analysis.

Key Words-: Phytochemical, *Tinospora cordifolia, Trigonella foenum graecum,* HPTLC

INTRODUCTION

Life is man‟s most valuable possession, and next in order of value is health.Without health, life is deprived not only of much, if not all, of its usefulness, but also of its joys and pleasures. A sick man not only suffers pain and discomfort himself, and is unable to supply his own need, but he also requires one or more persons to stop doing their ordinary work and spend then time in caring for him. In this way he becomes a burden to others because they must nurse him and supplyhis food and clothing. The mainstay of traditional herbal medicine amongst rural dwellers worldwide since antiquity to date are medicinal

plants. The therapeutic use ofplants certainly goes back to the Sumerian and the Akkadian civilizations in about the third millenium BC. Hippocrates (460–377 BC), one of the ancient authors who described medicinal natural products of plant and animal origins, listed approximately 400 different plant species for medicinal purposes. Natural products have been an integral part of the ancient traditional medicine systems, e.g. Chinese,Ayurvedic and Egyptian (Sarker*et al*, 2007). Over the years they have assumed a very central stage in modern civilization as natural source of chemotherapy as well as amongst scientist in search for alternative sources of drugs. In the developing world about 3.4 billion people depend on plant-based traditional medicines. About 88 per cent of the world‟s population depend on traditional medicine for their primary health care. According to the World Health Organization, a medicinal plant is any plant which, in one or more of its organs, contains substances that can be used for therapeutic purposes, or which are precursors for chemo-pharmaceutical semi synthesis. The plant parts including leaves, roots, rhizomes, stems, barks, flowers, fruits, grains or seeds, employed in the control or treatment of a disease condition and therefore contains chemical components that are medically active. These non-nutrient plant chemical compounds or bioactive components areoften referred to as phytochemicals („phyto-„from Greek - phyto meaning „plant‟) or phytoconstituents and are responsible for protecting the plant against microbial infections or infestations by pests (Rios*et al.*, 2005, Adekunle and Adekunle , 2009).The phytochemistry is the study of natural products. Phytochemicals have been isolated and characterized from fruits such as grapes and apples, vegetables such as broccoli and onion, spices such as turmeric, beverages such as green teaand red wine, as well as many other sources.

MATERIALS AND METHODS

PLANT COLLECTION AND AUTHENTICATION

Tinospora cordifolia leaves are collected from near Glocal University campus Saharanpur and *Trigonella foenum graecum* seeds are collected from local market, Saharanpur, Uttar Pradesh India.

PHARMACOGNOSY STUDIES

Organoleptic characters

For *Tinospora cordifolia* and *Trigonella foenum graecum* powder the following characters such as taste, odour, texture and colour are noted (Aiyelaagbe and Osamudiamen, 2009).

Fluorescence Studies

The fluorescence studies of the *Tinospora cordifolia* leaves and *Trigonella foenum graecum* seeds powder are observed in day light and UV light (254 nm and 365 nm) using different chemical reagents such as 1 N Sodium Hydroxide, 1 N Hydrochloric acid, 1N Sulphuric acid, Conc. Nitric acid, 5% Ferric chloride, IodineSolution, 1 N Ammonia, Sodium Nitro Prusside (SNP), 5% Potassium hydroxide, Picric acid and

Acetic acid. The powder and mixing with various solvents when exposed UV light, begin with fluorescence and show characteristic colour. The colour variations are observed at day light and uv light are noted. (Shyamala Gowriand Vasantha, 2010; Kokaski *et al.*, 1958).

RESULTS AND DISCUSSION

- The organoleptic characters of *Tinospora cordifolia* leaf powder is shown in Table 1. The leaf powder is green colour with astringent taste and not specificodour and rough texture.
- The organoleptic characters of *Trigonella foenum graecum* (Table 2) seed powder is yellowish brown colour with bitter taste, non-discrinible odour andFibrous texture.

Table 1

Organoleptic characters of *Tinospora cordifolia* leaf powder

Characters	***Tinospora Cordifolia***
Colour	Green
Taste	Astringent
Odour	Not specific
Texture	Rough

Table 2

Organoleptic characters of *Trigonella foenum graecum* seeds powder

Characters	***Trigonella foenum graecum***
Colour	Yellowish brown
Taste	Bitter
Odour	Not discernible
Texture	Fibrous

Fluorescence Studies

- The *Tinospora cordifolia* leaf powder and *Trigonella foenum graecum* seed powder fluorescence studies results are shown in Table 3 and Table 4.

Table 3

Fluorescence studies of *Tinospora cordifolia* (TC) leaf powder

S.No	Reagents Used	*Tinospora cordifolia* Leaf Powder		
		Day Light	254 nm	365 nm
1	TC powder	Dark Green	Greenish Brown	Light Brown
2	TC + 1N NaOH	Blackish Green	Greenish Brown	Greenish Brown
3	TC + 1N HCl	Greenish Brown	Dark Brown	Dark green
4	TC + 1N H_2SO_4	Greenish Brown	Light Yellowish Green	Green
5	TC + Conc. HNO_3	Green	Dark Blackish Brown	Black
6	TC + 5 % Fe Cl_3	Chocolate Brown	Reddish Brown	Green
7	TC + iodine solution	Greenish Block	Dark green	Black
8	TC + 1 N NH_3	Dark Yellowish Brown	Blackish Brown	Dark Brown
9	TC + Sodium Nitro Prusside (SNP)	Green	Light Greyish Green	Blackish Brown
10	TC + 5 % KOH solution	Dark Block	Brown	Green
11	TC + Picric acid	Dark Brown	Brown	Pale Green
12	TC + Acetic acid	Dark yellowish Brown	Light Yellowish Brown	Chocolate Brown

Table 4

Fluorescence studies of *Trigonella foenum graecum* (TFG) seeds powder

S.No	Reagents Used	*Trigonella foenum graecum* Seeds Powder		
		Day Light	**254 nm**	**365 nm**
1	TFG powder	Yellow	Greenish Yellow	Brown
2	TFG + 1N NaOH	Dark Yellow	Yellowish Brown	Dark Brown
3	TFG + 1N HCl	Greenish Yellow	Dark Yellow	Dark Red
4	TFG + 1 NH_2SO_4	Yellow	Black	Dark Brown
5	TFG + Conc. HNO_3	Pale yellow	Brown	Brown
6	TFG + 5 % Fe Cl_3	Yellow	Blackish Brown	Black
7	TFG + iodine solution	Yellow	Yellowish Brown	Brown
8	TFG + 1 N NH_3	Yellowish Brown	Brown	Dark Brown
9	TFG + Sodium Nitro Prusside (SNP)	Pale Yellow	Brown	Black
10	TFG + 5 % KOH solution	Yellowish Brown	Brown	Brown
11	TFG + Picric acid	Yellowish Brown	Brown	Brown
12	TFG + Acetic acid	Dark Yellow		
	yellow Brown			

The colour variation are recorded in the powder of two plants which are treated with many reagents individually like 1N NaOH, 1 N HCl, 50% H_2SO_4 , Conc.HNO_3, 5% $FeCl_3$, Iodine solution, 1 N NH_3, Sodium Nitro prusside , 5% KOH, Picric acid and Acetic acid are seen in the day light and are UV light like 254 nm and 365 nm. Slight variations are seen for certain reagents. For example for *Tinospora cordifolia* as such dark green in day light, greenish brown in UV 254 nm and light brown in UV 365 nm .Whereaswith 5% $FeCl_3$ in day light it show chocolate brown colour and reddish brown at 254 nm and green colour at 365 nm. Similarly for *Trigonellafoenum graecum* powder as such yellow colour in day light, greenish yellow at 254 nm and brown colour at 365 nm. Whereas powder with 1N NH_3 showsyellowish brown colour in day light, brown colour at 254 nm dark brown colour at 365nm.

CONCLUSION

The present study for the two study plants *Tinospora cordifolia* and *Trigonella foenum graecum* which includes and in depth analysis of various physico-phytochemical, qualitative phyto constituents, elements present qualitatively and quantitatively are seen.By using the two study plants extracts individually, the synthesis of silver nano particles and its anti-microbial study are studied. Authentication and standardization of study plants by HPTLC finger print analysis.*In vitro* and *in vivo* screening methods are followed for studying antioxidant potential. By using spectral techniques one or more phytoconstituents are isolated and the structures are elucidated.

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