COMPARISION OF CHLOROPHYLL CONTENT IN DIFFRENT TULSI SPECIES FOUND IN PAIKMAL HERBAL GARDEN, BARGARH DISTRICT, ODISHA

ABSTRACT

Tulsi is one of the most important plants found in India having medicinal & religious value. It represents by genus *Ocimum* belonging to family *Lameaceae*. There are 60 species *Ocimum* all over the world. Medicinally, Tulsi uses as herbal tea, treatment of respiratory disease, cold fever etc. Besides medicinal use it has religious important in Hindu religion Bargarh district located in western Odisha having longitude 82.5167 latitude 20.8167 paikmal generally four species of Tulsi found such ***Ocimum tenuiflorum*** *(black Tulsi),* ***Ocimum sanctum*** *(green Tulsi),* ***Ocimum basilcum****(dohna) and* ***Ocimum gratissum*** *(Vana Tulsi).* In this work there was an attempt to made to find out chlorophyll content of different Tulsi species found in Bargarh district Paikmal herbal Garden Odisha. In this work we were compare chlorophyll pigment of 4 different species of *Tulsi* as *Ocimum tenuiflorum* (black Tulsi), *Ocimum sanctum* (green Tulsi), *Ocimum basilcum*(dohna) and *Ocimum gratissum* (van Tulsi). Among them maximum total chlorophyll content found in *Ocimum tenuiflorum* and list in *Ocimum sanctum*. The chlorophyll a found maximum in *Ocimum basilcum*. And minimum in *Ocimum gratissum*. The chlorophyll b found maximum in *Ocimum basilcum* and minimum in *Ocimum tenuiflorum*. The total chlorophyll found *Ocimum gratissum* and minimum in *Ocimum sanctum*. This type of work provides us data regarding distribution of chlorophyll in different species of a genera, and high amount of chlorophyll indicate maximum photosynthetic activity of that plant and its medicinal importance.

KEY WORDS- *Ocimum Sp.,* chlorophyll content, Medicinal use,Spectrophotometer, Paikmal

INTRODUCTION:

Tulsi is one of the most important plants found in India having medicinal & religious value. It represents by genus Ocimum belonging to family Lameaceae. There are 60 species Ocimum all over the world. Medicinally, Tulsi uses as herbal tea, treatment of respiratory disease, cold fever etc. Besides medicinal use it has religious important in Hindu religion. Rashmi Chandra, et.al. (2011)**[1]** works on antimicrobial activities of tulsi. N Sing, et.al. (2012) **[2]** reported use of tulsi in cancer prevention and treatment. Pallavi Dixit (2015) **[3]** told that tulsi is the mother of all herbal medicine. Sumit Narval, et.al. (2011) **[4]** reviewed on chemical and pharmacological action of tulsi.

Chlorophyll is the photosynthetic green pigment of plants, there are generally a type of chlorophyll. Chlorophyll a & chlorophyll b to found in terrestrial plant chlorophyll is a green pigment that has capacity to light energy into chemical energy in particular process of such

conversion is called as plant that photosynthesis. The chlorophyll found in all green plant and also in cyanobacterial, algae. The chlorophyll molecule consists of a central magnesium atom surrounded by a nitrogen-containing structure called a porphyrin ring; attached to the ring is a long carbon–hydrogen side chain, known as a phytol chain. Beside photosynthesis chlorophyll have several health. benefit like and oxidant property, use in cancer prevention treatment of arthritics, management of obesity, Removal of liver toxicity etc.

Ocimum sanctum L. (Tulsi) is an erect, much branched sub-shrub 30-60 cm tall, with simple opposite green or purple leaves that are strongly scented and hairy stems. Leaves have petiole and are ovate, up to 5 cm long, usually somewhat toothed. Flowers are purplish in elongate racemes in close whorls. Tulsi is native throughout the world tropics and wide spread as a cultivated plant and an escaped weed.

In this work there was an attempt had to made to find out chlorophyll content of different Tulsi species found inBargarh district Paikmal herbal Garden Odisha.

METHODOLOGY:

Study Area

Paikmal block is situated in Bargarh district of Odisha. It is famous for Gandhamardhan hill which is a store house of many plants having mediational and ethnobotanical importance. Paikmal having longitude :82.84955 N and latitude :20.91844 E. In this project the plant specimen was collected from herbal garden Paikmal, which situated near Nausinghnath temple.

1.COLLECTION OF MATERIAL

The four species Tulsi such as*Ocimum tenruiflorum**(black Tulsi), ***Ocimum sanctum*** *(green Tulsi),* ***Ocimum basilcum****(dohna) and* ***Ocimum gratissum*** *(van Tulsi)* were collected from Nrushingnath Herbal Garden Paikmal Odisha.

2. Extraction of Chlorophyll

Chlorophyll was extracted as per Arnon in (1949) **[5]**.

Estimation of chlorophyll
⇓
Take 1 gm of Fresh leaf
⇓
Grind with 20 ml of 80% Acetone
⇓
Centrifuge at 5000RPM for 5 min
⇓
Transfer the supernatant
⇓
Take Absorbance at 645 nm & 663 mm in a spectrophotometer
⇓
Estimate chlorophyll by following formula:

1. Total chlorophyll = 20.3 (A645)+8.02(A663)
2. Chlorophyll A = 12.7 (A663) - 2.69 (A645)

3. Chlorophyll B = 32.9 (A645) - 4.68(A663)

RESULTS AND DISCUSSION

Form the experiment following results were found.

In *Ocimum tenuiflorum* chlorophyll a content 240.66, chlorophyll b content 154.51 and total chlorophyll contain 315.04.

In *Ocimum sanctum* chlorophyll a contain 42.774, chlorophyll b content 80.636 and total chlorophyll contain 123.366.

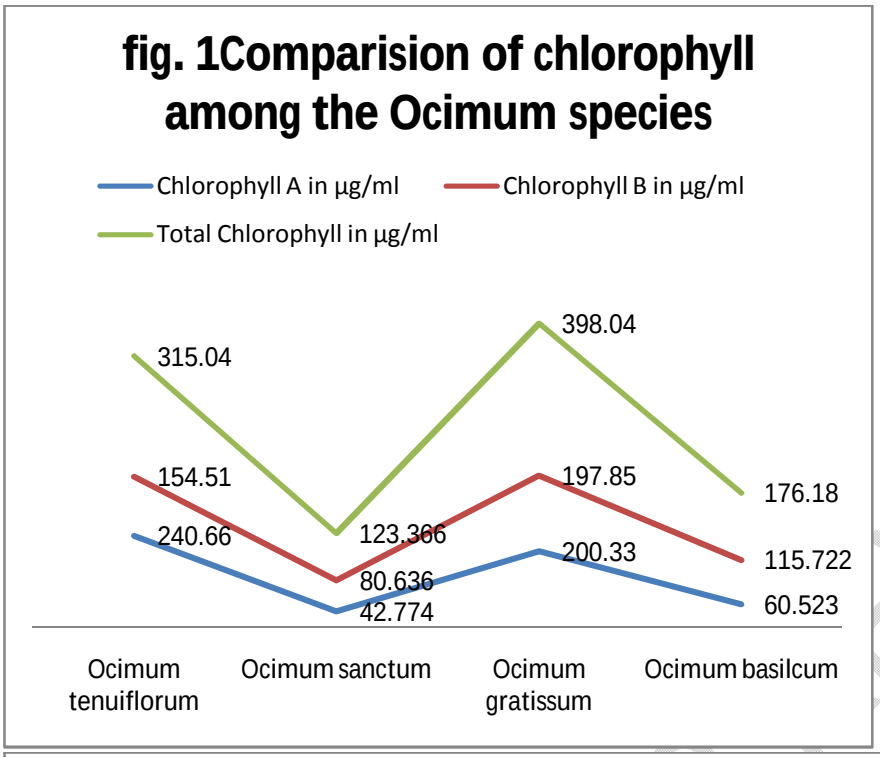
In *Ocimum gratissum* chlorophyll a contain 200.33, chlorophyll b content 197.85 and total chlorophyll contain 398.04.

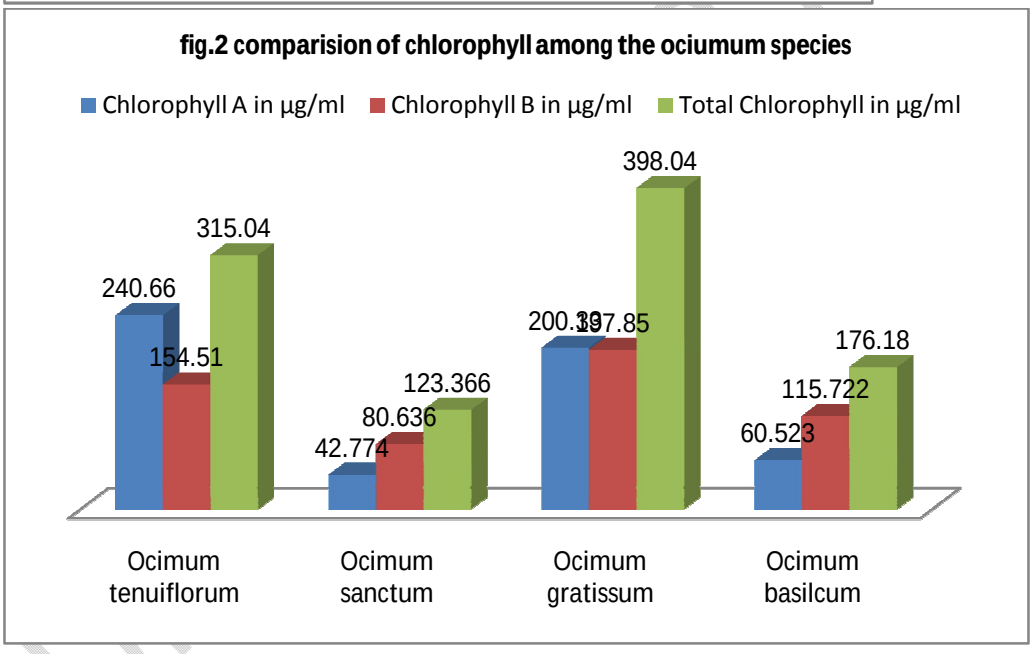
In *Ocimum basilcum* chlorophyll a contain 60.523, chlorophyll b content 115.722 and total chlorophyll contain 176.18.

Comparison of chlorophyll content reflected in table and graphs.

Table 1: Comparison of chlorophyll among the Ocimum species

	Name of the species	Chlorophyll A in µg/ml	Chlorophyll B in µg/ml	Total Chlorophyll in µg/ml
1	***Ocimum tenuiflorum***	240.66	154.51	315.04
2	***Ocimum sanctum***	42.774	80.636	123.366
3	***Ocimumgratissum***	200.33	197.85	398.04
4	***Ocimum basilcum***	60.523	115.722	176.18





CONCLUSION

In this work we were compare chlorophyll pigment of 4 different species of tulsi as *Ocimum tenuiflorum* (black Tulsi), *Ocimum sanctum* (green Tulsi), *Ocimum basilcum*(dohna) and Ocimum gratissuma(van Tulsi) Among them maximum total chlorophyll content found in *Ocimum tenuiflorum* And list in *Ocimum sanctum*. The chlorophyll a found maximum *in Ocimum basilcum*.And minimum in *Ocimum gratissum*.The chlorophyll b found maximum in *Ocimum basilcum* and minimum in *Ocimum tenuiflorum*. The total chlorophyll found *Ocimum*

gratissum and minimum in *Ocimum* sanctum. This type of work provides us data regarding distribution of chlorophyll in different species of genera, and high amount of chlorophyll indicate maximum photosynthetic activity of that plant and its medicinal importance. This data also used as a chemotaxonomy data for differentiate species with in a genus.

REFERENCE

1-Chandra, R., Dwivedi, V., Shivam, K., & Jha, A. K. (2011). Detection of antimicrobial activity of Oscimum sanctum (Tulsi) & Trigonella foenum graecum (Methi) against some selected bacterial & fungal strains. *Research journal of Pharmaceutical, Biological and chemical Sciences*, *2*(4), 809-813.

2-Singh, N., Verma, P., Pandey, B. R., & Bhalla, M. (2012). Therapeutic potential of Ocimum sanctum in prevention and treatment of cancer and exposure to radiation: An overview. *International Journal of pharmaceutical sciences and drug research*, *4*(2), 97-104.

3-Dixit, P. (2015). The two main medicinal gifts of nature: Alsi and Tulsi. *Anusandhaan-Vigyaan Shodh Patrika*, *3*(01), 58-60.

4- Narwal, S., Rana, A. C., Tiwari, V., Gangwani, S., & Sharma, R. (2011). Review on chemical constituents & pharmacological action of Ocimum kilimandscharicum. *Indo Global Journal of Pharmaceutical Sciences*, *1*(4), 287-293.

5-Arnon, D. I. (1949). Copper enzymes in isolated chloroplasts. Polyphenoloxidase in Beta vulgaris. *Plant physiology*, *24*(1), 1.