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 and&religious value. Itis represents by genus *Ocimum* belonging to family *Lameaceae*. There are 60 speciesof*Ocimum*thatall 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 ***Ocimumtenuiflorum****(black Tulsi),* ***Ocimum sanctum*** *(green Tulsi),* ***Ocimumbasilcum****(dohna) and* ***Ocimumgratissum*** *(VanaTulsi).* In this study work there was an attempt to made to find out chlorophyll content of different Tulsi species found in Bargarh district Paikmal herbal Garden Odisha.AlsoIn thisstudieswork we were compare the chlorophyll pigment of 4 different species of *Tulsi* as *Ocimumtenuiflorum* (black Tulsi), *Ocimum sanctum* (green Tulsi), *Ocimumbasilcum*(dohna) and *Ocimumgratissum* (van Tulsi). Among the results themthemaximum total chlorophyll content found in *Ocimumtenuiflorum* and list in *Ocimum sanctum*. The chlorophyll a found maximum in *Ocimumbasilcum*. And minimum in *Ocimumgratissum*. The chlorophyll b found maximum in *Ocimumbasilcum* and minimum in *Ocimumtenuiflorum*. The total chlorophyll found *Ocimumgratissum* and minimum in *Ocimum sanctum*. This type of studywork 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.

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

INTRODUCTION:

Tulsi is one of the most importantplants 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.SumitNarval, 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 aand&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[need reference].The chlorophyll molecule consists of a central magnesium atom surrounded by a nitrogen-containing structure called a porphyrin ring[need reference].; attached to the ring is a long carbon–hydrogen side chain, known as a phytol chain[need reference]. Beside photosynthesis chlorophyll have several health. benefit like and oxidant property, thatuse in cancer prevention treatment of arthritics, management of obesity, Removal of liver toxicity etc.

Ocimum sanctum L. (Tulsi) is an erect, much branched sub-shrubranged from(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 widespread as a cultivated plant and an escaped weed.

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

METHODOLOGY:[Check text, format and design]

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 studyproject the plant specimen was collected from herbal garden Paikmal, which situated near Nausinghnath temple.

1.COLLECTION OF MATERIAL

The four species Tulsi such as*Ocimumtenruiflorum**(black Tulsi), ***Ocimum sanctum*** (green Tulsi), ***Ocimumbasilcum****(dohna) and ***Ocimumgratissum*** (van Tulsi)** were collected from Nrushingnath Herbal Garden PaikmalOdisha.

2. Extraction of Chlorophyll

Chlorophyll was extracted as perArnon 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 *Ocimumtenuiflorum*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 *Ocimumgratissum*chlorophyll a contain 200.33, chlorophyll b content 197.85 and total chlorophyll contain 398.04.

In *Ocimumbasilcum* 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

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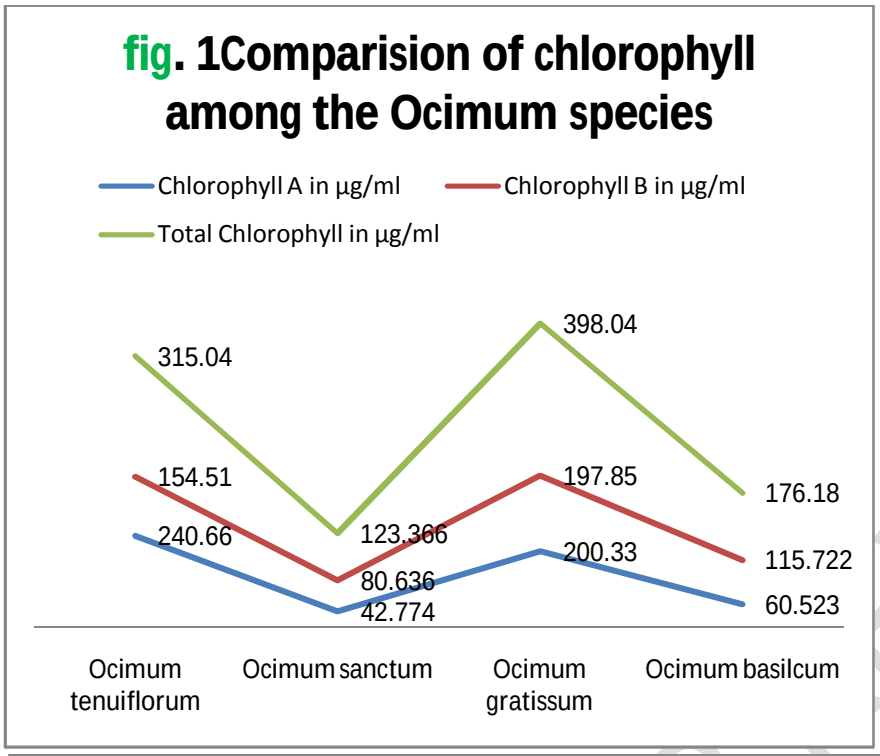
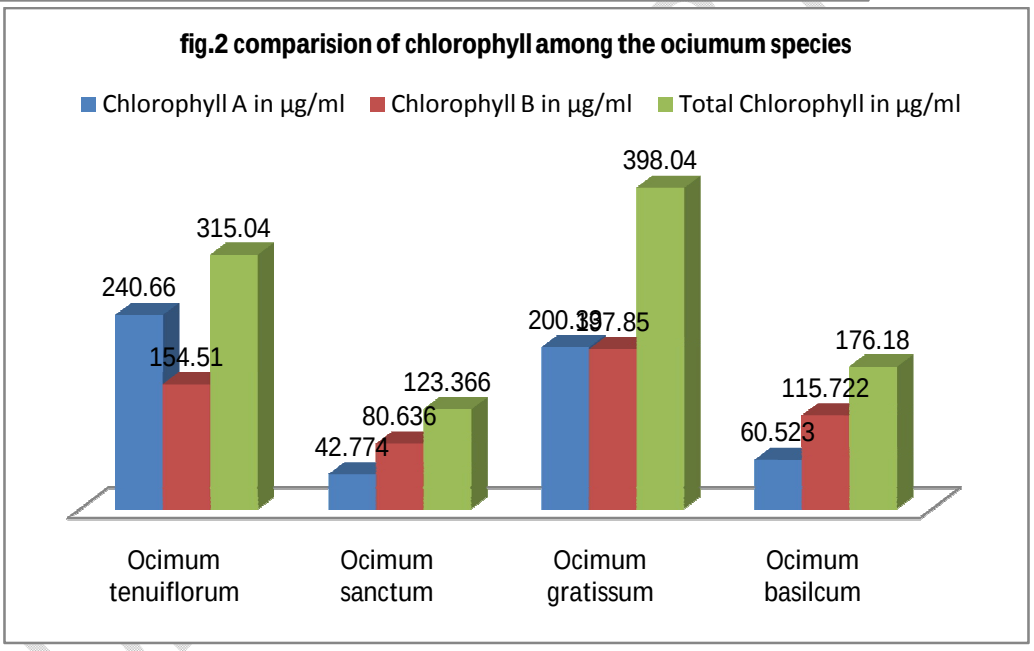
	Name of the species	Chlorophyll A in µg/ml	Chlorophyll B in µg/ml	Total Chlorophyll in µg/ml
1	***Ocimumtenuiflorum***	240.66	154.51	315.04
2	***Ocimum sanctum***	42.774	80.636	123.366
3	***Ocimumgratissum***	200.33	197.85	398.04
4	***Ocimumbasilcum***	60.523	115.722	176.18





CONCLUSION

The results in this studyworkwe were compareddbetweenchlorophyll pigment of 4 different species of tulsi as *Ocimumtenuiflorum*(black Tulsi), *Ocimum sanctum* (green Tulsi), *Ocimumbasilcum*(dohna) and Ocimumgratissuma(van Tulsi)Among them maximum total chlorophyll content found in *OcimumtenuiflorumA*nd list in *Ocimum sanctum*. The chlorophyll a found maximum *in Ocimumbasilcum*.Andminimum in *Ocimumgratissum*.Thechlorophyll b found maximum in *Ocimumbasilcum*and minimum in *Ocimumtenuiflorum*. The total chlorophyll

found *Ocimumgratissum* and minimum in *Ocimum* sanctum. This type ofstudyworkprovides 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.

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