Estimation of Organic and Inorganic Constituents of Some Members of family Euphorbiaceae from Dapoli Tahasil.

VIKRAM .P. MASAL[1], R.S.SHINDE[1], S.S.MARATHE[1]
Dapoli Urban Bank Senior Science College Dapoli
Dist –Ratnagiri (M.S.) 415712
Email- masalvikram@gmail..com
Mobile No- 9421135926

Introduction

Many constituents who occur naturally are beneficial for human health. Organic and inorganic constituents from plants act majorly on very vital functions in humans. Such constituents were estimated in the following work. The selection of plants was done according to the availability in the surrounding area for such study.

Organic constituents like chl.a, b, carotenoids and inorganic constituents like Zinc and manganese were estimated. *Phyallantus embilica, Breynia paten, Acalphya hispida, Macaranga peltata* were the experimental members of family Euphorbiaceae.

Material and method:

Material:

CLASSIFICATION:

Division: Spermatophyta

Sub division: Angiospermae

Class: Dicotyledonae

Series: Unisexual

Family: Euphorbiaceae

Phyallantus embilica, Breynia paten, Acalphya hispida, Macaranga peltata were used for experimental members of family Euphorbiaceae.

Methods:

Organic constituents:

1 gm. leaf with pinch of $MgCO_3$ powder in 80% acetone to a paste.

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Centrifuge at 5000 rpm for 5 minutes and transfer the supernatant to 100ml volumetric flask.

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Grind residue with 20 ml of 80% acetone, centrifuge and transfer the supernatant to the flask used to the previous step.

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Repeat this procedure till the residue is rendered colorless.

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Make the volume to 100ml with 80 % acetone.

Read and record the absorbance of the solution at 645 nm and 663 nm using a colorimeter against 80% solvent blank.

Calculate the amount of chlorophyll present in the extract on the basis of leaf milligram of chlorophyll per gram of leaf, extracted as per **Arnon (1949) method.**

Inorganic constituents

(Keep this solution in plastic bottle)

- Take 10gm of plant in 100 ml conical flask.
- Then put 2 drops of DTPA solution and shake it for 2 hours.
- Then filter the solution through 42 no. What man filter paper in 50 ml beaker.
- Immediately taking the reading of filtrate on AAS machine. (Model-Elico,ch-22A) and calculated the values of Zn, and Mn .

OBSERVATION TABLE:

For organic constituent:

Sr. no.	Name of plant	Organic constituents	Acetone mg/gm
1.	*Phyllanthus emblica*	Chlorophyll a	0.311
		Chlorophyll b	0.316
		Carotenoids	0.257
2.	*Acalypha*	Chlorophyll a	0.015

	hispida	Chlorophyll b	0.042
		Carotenoids	0.288
3.	*Macarang a peltata*	Chlorophyll a	0.176
		Chlorophyll b	0.181
		Carotenoids	0.358
4.	*Breynia patens*	Chlorophyll a	0.015
		Chlorophyll b	0.042
		Carotenoids	0.288

INORGANIC CONTITUENTS:

No.	Name of plant	Part	Inorganic constituents	Quantity in mg/gm
1.	*Phyllanthus emblica*	Leaves	Mn	0.723
		Stem	Mn	2.996
			Zn	4.718
2.	*Acalypha hispida*	Leaves	Mn	0.185
		Stem	Mn	0.319
3.	*Macaranga peltata*	Leaves		2.190
		Stem		1.535
	Breynia patens	Leaves		0.965
		Stem		2.571

RESULT

I. Phyllanthus emblica

1. **Organic constituents-**
   - The chlorophyll a content in *Phyllanthus emblica* is 0.309 mg/gm. tissue.
   - The chlorophyll b content in *Phyllanthus emblica* is 0.578 mg/gm. of tissue.
   - The Carotenoids content in *Phyllanthus emblica* is 0.102 mg/gm. of tissue.
2. **In-Organic constituents-**
   - The *Phyllanthus emblica* is having 0.723mg/gm. of 'Mn' in its leaf tissue.
   - The *Phyllanthus emblica* is shows 2.996 mg/gm. of 'Mn' in its stem tissue.
   - The *Phyllanthus emblica* is shows 4.718mg/gm of 'Zn 'in stem tissue. The parallel result was shown by Marscher (1986).

II. *Acalypha hispida* :

- **Organic constituents-**
- The chlorophyll a content in *Acalypha hispida* is 0.0078 mg/gm. of leaf tissue.
- The chlorophyll b content in *Acalypha hispida* is 0.089mg/gm. of leaf tissue.
- The Carotenoids content in *Acalypha hispida* is 0.115 mg/gm. of leaf tissue.
- **In-Organic constituents-**
- The *Acalypha hispida* is having 0.185 mg/gm. of 'Mn' in its leaf tissue.
- The *Acalypha hispida* is having 0.319mg/gm. of 'Mn' in its stem tissue.

III. *Macaranga peltata:*

- **Organic constituents-**
- The chlorophyll a content in *Macaranga peltata* is 0.174 mg/gm. of its leaf tissue.
- The chlorophyll b content in *Macaranga peltata* is 0.332 mg/gm. of its leaf tissue.

- The Carotenoids content in *Macaranga peltata* is 2.088 mg/gm. of tissue.
- **Inorganic constituents-**
- The *Macaranga peltata* is having 2.190 mg/gm. of 'Mn' in its leaf tissue.
- The *Macaranga peltata* is having 1.535 mg/gm. of 'Mn' in its stem tissue.
- **IV. *Breynia patens* :**
- **Organic constituents-**
- The chlorophyll a content in *Breynia patens* is 0.007 mg/gm. of its leaf tissue.
- The chlorophyll b content in *Breynia patens* is 0.089mg/gm. of its leaf tissue.
- The Carotenoids content in *Breynia patens* is 0.115 mg/gm. of tissue.
- **Inorganic constituents-**
- The *Breynia patens* having 0.965 mg/gm. of 'Mn' in its leaf tissue.
- The *Breynia patens* having 2.571 mg/gm. of 'Mn' in its stem tissue.

CONCLUSION

- **Chlorophyll a and b** both have some benefits related to human health such as it helps fight cancer,improves liver detoxification,speed up wound healing,improves digestion and weight control.According to the readings recorded *Phyllanthus emblica* has the highest **chlorophyll a** and **b** while the lowest amount was recorded in *Acalypha hispida* and *Breynia patens*
- **Carotenoids** protect chlorophyll from photodamage so cholophyll and carotenoid are inter-related.In this study *Macaranga peltata* showed the highest **carotenoids** while lowest amount was recorded in *Phyllanthus emblica*
- *Breynia patens* leaves has the highest amount of mangnese while *Acalypha hispida* leaves has the lowest amount.
- *Phyllanthus embelica* stem has the highest amount of manganese while *Acalypha hispida* stem has the lowest amount.
- **Manganese** have some benefits related to human health such as healthy bone structure, bone metabolism, help to create essential enzyme for building bones. It helps in absorption of calcium. It also plays an important role in proper functioning of thyroid gland. It regulates blood sugar level and helps in metabolism of fats and carbohydrates.
- **Zinc** regulates immune functioning, treating diarrhoea, affecting learning and memory; wound healing, cure common cold.

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