

Measurement of Ash content

There are a number of elements and minerals are required for human beings which are obtained from plant resources. So, it is an essential criterion for plant materials to determine different types of crude materials as well as residual or adulterants for using purpose to human being. The human body structure required different types of organic, inorganic materials to meet its expense. The main constituents of human diet are dependent on proteins, carbohydrates, fats side by side as a supplement vitamins, minerals are also required (Indrayan et al; 2005). The food quality which we consumed depends on types of organic, inorganic substances and minerals are present within it. These are very much essential to prevent or resist different types of diseases. These types diet help us to cope up with the injury from environmental pollutants and also increase the ability to work which may we called as healthy diet (e.g. Phosphorus, Calcium, Sodium, Potassium etc.) where are some might be toxic or lethal which are harmful for health purpose (e.g. Mercury, Lead, Aluminum, Cadmium etc.). The use of mineral element are developed and used widely to cure several health problems. The composition and amount and of remaining ash after combustion of plant extracts may varies depending on different issues of the plant like age, treatment etc. The inorganic part of the plant is represented by its ash content. The ash content is also variable in nature depending on time and from organ to organ.

Materials and Methods

The physic-chemicals analysis includes number of parameters such as physical status, color, test, and percentage of loss by drying as per standard method of Gupta reported on 1984 and The Indian Pharmacopoeia, 1996.

Preparation of Ash

3gm of drug was treated in a Silica crucible under the burner flame. The material which is charred, heated in muffle furnace around six hours at 600-6500c .The ash formed which showed whitish color and it's free of carbon. Then the ash was cooled for a while and weighed on the filter paper which is ash less in nature.

$$\text{Ash value} = \frac{\text{Initial Weight} - \text{Final Weight}}{\text{Initial Weight}} \times 100$$

Water soluble Ash

The total ash obtained above was boiled with distilled water for 5 minutes. The matter which are insoluble, collected and filtrate in same way. The calculation of the result was done with reference to the air dried drug.

Determination of acid insoluble Ash

The acid with the materials was boiled for 5 minutes in dilute HCL. Insoluble matter collected for the purpose of filtration with the help of filter paper which is ash less in nature and rinsed with hot water, ignited and weight. Percentage of acid insoluble ash was calculated against the air dried drug.

$$\text{Extractive value} = \frac{\text{Initial weight-Final weight}}{\text{Initial weight}} \times 100$$

XV.A -Results (*Loranthus parasiticus*)

The dry fine powder of leaves is light green or greenish in color and acidic in nature, the PH level is 5.5. The ultimate amount of ash of leaves is 11.14 % of which 0.72% water soluble and 10.42% is water insoluble. Out of 11.14% total amount of ash, 7.62% is acid soluble and 3.52% is acid insoluble. The dry fine powder of bark is dark in colour and powder of bark is much acidic than powder of leaves. The PH level of dry powder of bark is 5.1. The total amount of ash of bark is 13.79% which is greater than amount of total ash content of leaves. The water soluble ash of bark is 1.21% and water insoluble ash is 12.57% which is greater than water soluble and insoluble of leaves ash. The water soluble and insoluble total ash of bark increasing rang 1%-2% respectively than the leaves ash content. Out of 13.79% total amount of ash of bark, acid soluble is 6.15% which is lesser than the acid soluble ash content of leaves. The calculation of acid insoluble ash measured to 7.64% which is greater than the leaves. So, we can say the total ash percentage found to be in the increasing order bark > leaves. The overall result is given below in a tabulated form.

Table – 47: Physicochemical Analysis of Plant Ash (<i>Loranthus parasiticus</i>)

Plant	Plant Part	Physical Status	Colour of Ash	Test of Ash	PH of Ash Sol.	Total Ash %	% of Ash Value			
							Water		Acid	
							Sol.	Insol.	Sol.	Insol.
<i>Loranthus parasiticus</i>	Leaves	Fine Powder	Light Green	Acid	5.5	11.14	0.72	10.42	7.62	3.52
	Bark	Fine Powder	Dark	Acid	5.1	13.79	1.21	12.57	6.15	7.64

XV.B -Results (*Macrosolen cochinchinensis*)

The dry fine powder of the leaves is light green/greenish in color and acidic in nature, the PH level is 5.9. The total ash amount of the leaves is 12.04% of which 0.88% water soluble and 11.16% water insoluble. Out of 12.04% total ash amount 6.84% is acid soluble and 5.20% acid insoluble. The dark fine powder of the bark is dark brownish in color. The powder of the bark is much acidic in nature than the leaves. The PH of the powder showed 5.6 in PH meter. Total amount of the ash of the powder of the bark is 14.15% which is greater than the leaves powder. Out of 14.15% 1.08% water soluble and 13.07% water insoluble. In acid solvent 6.84% acid soluble and 7.72% acid insoluble is measured. The result is given in below as tabulated form.

Table - 48: Physicochemical Analysis of Plant Ash (*Macrosolen cochinchinensis*)

Plant	Plant Part	Physical Status	Colour of Ash	Test of Ash	PH of Ash Sol.	Total Ash %	% of Ash Value			
							Water		Acid	
							Sol.	Insol.	Sol.	Insol.
<i>Macrosolen cochinchinensis</i>	Leaves	Fine Powder	Light Green	Acid	5.9	12.04	0.88	11.16	6.84	5.20
	Bark	Fine Powder	Dark Brown	Acid	5.6	14.15	1.08	13.07	6.88	7.72

XV.C -Results (*Viscum album*)

The dry powder of leaves is light green/greenish in color and acidic in nature. The PH level is 6.1. The amount ash in leaves is 10.72% of which 1.5% water soluble and 9.67% is water

insoluble out of 10.72% total amount of ash 4.08% is acid soluble and 6.64% acid is insoluble. The fine powder of bark dark colour and more acidic than powder of leaves. The PH level of dry powder of bark is 5.5. The ultimate amount of ash of bark is 13.16% which is greater than leaves. The ash which is soluble in water of bark is 1.55% and water insoluble ash is 11.61%. The acid soluble ash on bark is 6.08% and acid insoluble ash measured to 7.08%. So, we can say that the calculation of total ash percentage found to be in the increasing order bark>leaves.

Table - 49: Physicochemical Analysis of Plant Ash (*Viscum album*)

Plant	Plant Part	Physical Status	Colour of Ash	Test of Ash	PH of Ash Sol.	Total Ash %	% of Ash Value			
							Water		Acid	
							Sol.	Insol.	Sol.	Insol.
<i>Viscum album</i>	Leaves	Fine Powder	Light Green	Acid	6.1	10.72	1.05	9.67	4.08	6.64
	Bark	Fine Powder	Dark Brown	Acid	5.5	13.16	1.55	11.61	6.08	7.08

XV.D -Discussions

The determination of ash value related to inorganic solutes present in materials which are mainly used for the medicinal purposes. Quite a few herbal therapies make use of plant ash. It is to common that the organic materials of plants are not contain ash and therefore salts from inorganic origin are used for medicinal purposes. It is also interesting fact related to ash is that they showed different solubility in different solvents. For this reason, the solubility of ash in hydrochloric acid as well as water was tested present study.