**Determination of ( ASH) in feed matter**

**ASH:**

there is inorganic matter remaining after burning feed sample on high temperature **(500 – 600º C )**.

The minerals compound of ash in **a large amount** (essential minerals) include {Potassium (**K**) , Sodium (**Na**), Calcium (**Ca**) , Magnesium (**Mg**) }. The minerals compound of ash in **a small amount** (trace minerals) Include{Manganese(**Mn**),Cupper(**Cu**),Aluminum(**Al**) Iron(**Fe**),Zinc(**Zn**) , Floor (**F**), Iodine(**I**)}

There is **a poisoning** and **very little** (rare) minerals in Feed like: Lead (**Pb**) , Mercury (**Hg**) They were comes from soil , Pesticides and other sources .

**Aims of Experiments:**

1. Determination and know elements minerals in the diet.
2. Determination the organic matter (OM=DM – ASH ).
3. The ash considered as a good indicator for the purity of (Flour ). **4-** The a mount of ash considered as a good indicator of biological action of yeast (Reproduction and Production ).

**5-** To know the deceive in feed due to found increased salt or stone in the feed.

**Scientific principles of experiment:**

Burn The sample on high temperature ( 600c ) lead to burning the organic matter while the residue don’t affect by burn called ASH (inorganic matter).

**Type of Ashing:**

1. **Dry ashing** :this type produce by used furnace in high temperature (500-600 c0 ).
2. **Wet ashing** : this type depend on use mixing from perchloric acid( HCLO4) and nitric acid (1:2) ratio so when put the sample on this mixture for 24 hour lead to digest all organic matter and the residue inorganic matter (ASH).

**Equipment and machines used:**

**1**-Sensitive Electrical Balance .

 **2**-Furnace

 **3**-Crucible

**4**-Samples(2)gm

**5**- Desiccator

**Note 1:** The sample used to determination of ash must be fresh sample or dry sample in which moisture was determined .

**Note 2**:If the sample appears liquid we must take 5-10 mm 3 from the sample and drying it in oven before putting it in furnace

**The Procedure of Determination:**

**1**- Put the clean crucible in oven with 105 º C for 1 hour then hold it to desiccator until it will cool .

**2**-Weight the cooling crucible by sensitive electrical balance and record it weight , put (2) gm of sample.

**3**-Put the crucible contain sample in furnace on **(500) ºC for 5 hours** or **(600) ºC for 3 hours** {raised the temperature gradually in oven until your arrived to the optimum temperature }

**4**-After burning remove the crucible from the Furnace to desiccator until it will cool then record it’s weight .

**5**- Calculation of ash percentage in a sample according to the equation.

 **Weight of ash**

 **% of Ash = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ × 100**

 **Weight of sample**

Weight of ASH = (Crucible w.+ Sample w.) after burning – (empty Crucible. .w)

**Note:-**The normal percentage of Ash **2-3 %** if it is more that mean the period of burning not enough or due to there is not enough time for cooling Crucible because it need 10 minute , cause it effect on weight.

