College of Veterinary Medicine

Date: 2024 - 2025

Unit of Scientific Affairs

Website: https://uomosul.edu.ig/veterinarymedicine/

Lecture title: Determination of Moisture in feedstuffs

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Summary:

Moisture is defined as the free amount of water present in any feedstuff. Moisture can be avoided in any feedstuffs sample by putting the sample in **oven**. The remaining quantity which remains after this process is called "Dry Matter".

The most important causes for determination of moisture:

- 1. To prepare of feed sample for different chemical analysis in case of green plant feeds, because high moisture lead to growth of fungi, rapid deterioration of the feed, and autolysis of feedstuffs.
- 2. To record feed components according to dry matter basis.

Procedure of the experiment:

1. Empty, labeled, clean moisture can is placed in oven (150 ° C) for half an hour. The aim of this process is for cleaning and sterilization.

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(The cans)

2. The can is transferred from oven into desiccator for cooling.



(Oven)

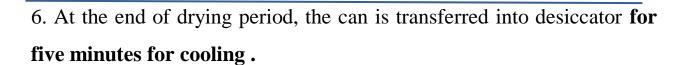
- 3. The can is weighed by digital electrical scale with recording the weight (weight of empty can).
- 4. Weigh (1-2 gm.) of the sample inside the can (weight before drying).
- 5. Moisture can with feed sample is put in the oven at (150 °C) for half an hour.

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7. After drying, the can is weighed by digital scale(weight after drying).

Calculations: -

- 1. Moisture can is weighed when it's empty (weight of empty can).
- 2. Weight of moisture can with the sample (weight before drying).
- 3. Weight of the sample =

weight before drying - weight of empty can

- 4. Weight of moisture can with the sample (weight after drying).
- 5. Weight of moisture =

weight before drying - weight after drying .

6. The percentage of moisture in the sample =

$$\frac{weight\ of\ moisture}{weight\ of\ sample}*100$$

weight before drying - weight after drying weight before drying-weight of empty can * 100

- 7. The percentage of dry matter of the sample =
 - = 100 moisture percentage (%).

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Example(1):-

The weight of empty moisture can is (13.5 gm.) the weight of the can with the barley sample is (15 gm.) (weight before drying). The barley sample is put in oven at (150 °C) for half an hour the weight is became after drying is (14.9 gm.) (weight after drying). Estimate the moisture and dry matter percentages of this sample.

Solution:-

Weight of the sample = weight before drying – weight of empty can

$$= 15 - 13.5$$

$$= 1.5 \text{ gm}.$$

Weight of moisture = the weight before drying – weight after drying

$$= 15 - 14.9$$

$$= 0.1$$
 gm.

The percentage of moisture in the sample =

$$\frac{weight\ of\ moisture}{weight\ of\ sample}*100$$

$$\frac{0.1}{1.5} * 100 = 6.6 \%$$

The percentage of dry matter =

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= 100 - moisture percentage.

$$= 100 - 6.6$$

Example (2):-

The weight of empty moisture can is (17.1gm.). (19 gm.) is the weight the can and the corn sample added to can. The sample is put in oven at (150 °C) for half an hour. The sample was transferred from the oven and was weight. The weight is became after drying (18.9 gm.). Estimate dry matter percentage of this sample.

Solution:-

Weight of the sample =

weight before drying - weight of empty can

$$= 19 - 17.1$$

$$= 1.9 \text{ gm}.$$

Weight of moisture =

weight before drying – weight after drying

$$= 19 - 18.9$$

$$= 0.1 \text{ gm}.$$

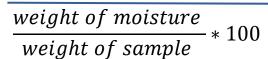
The percentage of moisture in this sample =

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$$\frac{0.1}{1.9} * 100 = 5.2 \%$$

The percentage of dry matter = 100 - moisture percentage (%)

$$= 100 - 5.2$$