

Chemical analysis determination of sugar content biology essay



Took 5 g of sample into a beaker and added 100 milliliter of lukewarm H₂O. The mixture of suspension until all the soluble affairs were dissolved and filtered into a 250 volumetric flask. Pipetted 100 milliliter of the solution acquire readied into a conelike flask ; added 10 milliliter diluted HCl and boiled for 5 min. On chilling, neutralize the solution to phenolphthalein with 10 % NaOH and counterbalance to volume in a 250 volumetric flask. This dissolver was utilized for titration against Fehling ' s solution and reading was computed as follow. One of the most of import factors act uponing seed quality and storability is moisture content.

Consequently, the appraisal during seed quality calculation is of import. Moisture content can be expressed either on moisture weight foundation or on dry weight foundation, in grain testing, it is ever expressed on a wet weight footing, and the method for its finding is given subsequently. Moisture content can be determined either by air oven or moisture metre.

However, if prescribed criterion for wet content is less than 8 % , air oven method shall be used. Loading 10 g of each sample added in a silicon oxide melting pot. The melting pot was heated in a shroud furnace for about 180-300 min at 600 & A ; deg ; C.

It was cooled in desiccators and loaded to completion of ashing. To guarantee completion of ashing, it was heated once more in the furnace for 30-60 min more, cooled and laden. This was repeated accordingly till the weight became changeless. Weight of ash content was calculated by the equations.

Ash % = $\frac{\text{Weight of ashed sample}}{\text{Weight of sample taken}} \times 100$

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5. Determination of protein

Protein was determined utilizing Kjeldahl method as describe in AOAC (2000) . 2 g of sample taked in a vacuity and the add-on of 10 g K sulfate and 1 g Cu sulfate added following sum of 30 milliliters concentrated sulphuric acid (H₂SO₄) . The mixture was heated foremost gently and so strongly once the frothing had ceased. When the solution became colourless or clear, it was heated for another hr, allowed to chill, diluted with distilled H₂O (rinsing the digestion flask) and transferred to 800 milliliter vacuity. 3 or 4 pieces of granulated Zn and 100 milliliter of 40 % acerb sodium carbonate were being an add-on and the flask was connected with the splash caputs of the distillment setup. Following 25 milliliter of 0.

1 N sulfuric acid was taken in the receiving flask and distilled. When two-thirds of the liquid had been distilled, it was tested for completion of reaction. The vacuity was removed and titrated against 0. 1 N acerb sodium carbonate solution utilizing methyl ruddy index for calculation of Kjeldahl N, which in bend gave the protein content. The per centum of protein content was calculated by the equations.

$$N \% = 1.4 (V_2 - V_1) \times \text{Normality of HCl} \times 250 (\text{dilution}) / \text{Weight of Sample}$$
Whereas, the appraisal of transition of nitrogen per centum to protein was protein content

$$\text{Protein \%} = N \% \times \text{Conversion factor} (6.25)$$
Where transition factor = 100/N (N % in fruit merchandises)

6. Determination of fat

Fat content was determined gravimetrically after extraction with ether and crude oil quintessence from an ammonium hydroxide alcoholic solution of

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the sample. 10 g of sample was taken into a Mojonnier tubing. Added 1 milliliter of 0.880 with 10 milliliters ethanol assorted good and cooled.

Added 25 milliliter diethyl quintessence, stopper the tubing, shaken smartly and so added 25 milliliters crude oil quintessence and left the tubing to be stand for 1 hour. The extraction was replaced thrice utilizing a mixture of 5 milliliters crude oil quintessence and adding the extraction to the distillment flask. Distilled off the dissolvers, dried the flask for 1 hour at 100 C and reweighed.

The per centum fatContent of the sample was calculated by the following expression which gave that the difference in the weight or the original flask and the flask plus extracted fat represent the weight of fat nowadays in the original sample.

$$\% \text{ Fat content of sample} = \frac{W_2 - W_1}{W_3} \times 100$$

Where: W_1 = Weight of empty vacuity (g)
 W_2 = Weight of vacuity + fat (g)
 W_3 = Weight of sample taken (g)

7. Determination of plasma glucose

After aggregation of the whole blood incorporating Na fluoride as preservative (2.5 mg/dL of blood) the blood sample was centrifuged and plasma was aspirated and deproteinized by gel filtration method. The glucose method is and an version of the hexokinase-glucose-6 phosphate dehydrogenase method.

Hexokinase (HK) catalyzes the phosphorylation of glucose by adenosine-5'-triphosphate (ATP) to glucose-6-phosphate which is oxidized to 6-

phosphogluconolactone by glucose-6-phosphate dehydrogenase (G-6-PDH)

with coincident decrease of nicotinamide-adenine dinucleotide phosphate

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(NADP) . One mole of NADP is reduced to one mole of NADPH for each mole of glucose nowadays. The optical density due to NADPH (and therefore the glucose concentration) is determined utilizing a bichromatic (340 and 383 nanometer) end point technique. Glucose + ATP > Glucose-6-phosphate + ADP
 Glucose 6 Phosphate + NADP > 6 - phosphogluconolactone + NADPH
 HKMG++ Calculation of glycemic index (GI)
 Glycemic index of nutrient is the ratio of blood glucose country under the curve for trial nutrient compared with a mention nutrient (staff of life or glucose) .

The GI is normally defined as the country under the glycemic response curve during a 2 hour period after ingestion of 50-g saccharide from a trial nutrient, and values are expressed comparative to the consequence of either white staff of life or glucose. Originally the mention was glucose contained 50 g CHO. In the fruit, the GI was calculated as

$$GI = \frac{\text{Blood glucose response country of fruit}}{\text{Blood glucose response country of glucose}} \times 100$$