

B
A
L
B
M
7 (F-1-6).

Materials and Method

Sample collection

B (*Vigna subterranean*)
hypogea)
D
M
K
N
N
B
Arachis hypogea.

B
K
B

Methods

Proximate Analysis

Calculation

$$\% \text{ Moisture} = \frac{W_2 - W_3}{W_2 - W_1} \times 100$$

1. Weigh 5g of sample in a pre-weighed container (W₁)
 2. Dry the sample in a hot air oven at 105°C for 24 hours (W₂)
 3. Dry the sample in a desiccator over anhydrous calcium chloride for 24 hours (W₃)

1. Weigh 5g of sample in a pre-weighed container (W₁)
 2. Dry the sample in a hot air oven at 105°C for 24 hours (W₂)
 3. Dry the sample in a desiccator over anhydrous calcium chloride for 24 hours (W₃)

Determination of Ash Content

1. Weigh 5g of sample in a pre-weighed container (W₁)
 2. Dry the sample in a hot air oven at 105°C for 24 hours (W₂)
 3. Ash the sample in a muffle furnace at 550°C for 4 hours (W₃)

Calculation

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

$$= \frac{W_3 - W_1}{W_2 - W_1} \times 100$$

Determination of Crude Protein

Principle

1. Weigh 0.5g of sample in a pre-weighed container (W₁)
 2. Add 10ml of 0.1N sodium hydroxide solution (I)
 3. Boil the sample for 15 minutes

4. Cool the sample and add 10ml of 0.1N sodium hydroxide solution (II)
 5. Add 10ml of 40% NaOH solution
 6. Add 10ml of 2% (10⁻³) 5% sodium hypochlorite solution (0.02M)

Calculation

$$\% \text{ N} = \frac{\text{Pg}}{\text{Weight of sample used}} \times 100$$

1. Weigh 0.5g of sample in a pre-weighed container (W₁)
 2. Add 10ml of 0.1N sodium hydroxide solution (I)
 3. Boil the sample for 15 minutes (6.25)
 4. Cool the sample and add 10ml of 0.1N sodium hydroxide solution (II)
 5. Add 10ml of 40% NaOH solution
 6. Add 10ml of 2% (10⁻³) 5% sodium hypochlorite solution (0.02M)

Determination of Crude Fat

1. Weigh 5g of sample in a pre-weighed container (W₁)
 2. Dry the sample in a hot air oven at 105°C for 24 hours (W₂)
 3. Extract the fat with diethyl ether for 24 hours (W₃)
 4. Evaporate the ether and weigh the residue (W₄)
 5. Dry the residue in a hot air oven at 105°C for 24 hours (W₅)

1 = 100 - (M + A + F) (3).

Determination of Total Carbohydrate

1. Weigh 0.5g of sample into a pre-weighed crucible. 2. Ignite in a muffle furnace at 450°C for 4 hours. 3. Cool and weigh. 4. Calculate the percentage of ash. 5. Calculate the percentage of total carbohydrate as follows: % Total Carbohydrate = 100 - (% M + % A + % F) (3).

Calculation

$$\% \text{ Total Carbohydrate} = 100 - (\% M + \% A + \% F) \text{ (3)}$$

Mineral Element Analysis

Determination of Mineral Elements

1. Weigh 0.5g of sample into a pre-weighed crucible. 2. Ignite in a muffle furnace at 450°C for 4 hours. 3. Cool and weigh. 4. Calculate the percentage of ash. 5. Calculate the percentage of total carbohydrate as follows: % Total Carbohydrate = 100 - (% M + % A + % F) (3).

Statistical Analysis

1. Weigh 0.5g of sample into a pre-weighed crucible. 2. Ignite in a muffle furnace at 450°C for 4 hours. 3. Cool and weigh. 4. Calculate the percentage of ash. 5. Calculate the percentage of total carbohydrate as follows: % Total Carbohydrate = 100 - (% M + % A + % F) (3).

Result and Discussion

Results

Proximate Composition

1. Weigh 0.5g of sample into a pre-weighed crucible. 2. Ignite in a muffle furnace at 450°C for 4 hours. 3. Cool and weigh. 4. Calculate the percentage of ash. 5. Calculate the percentage of total carbohydrate as follows: % Total Carbohydrate = 100 - (% M + % A + % F) (3).

Table 1: Mean of Proximate Compositions of Bambaranut and Groundnut Varieties.

Proximate Composition (%)	Bambaranut	Groundnut
Moisture	6.23 ± 0.12	6.15 ± 0.10
Carbohydrate	78.54 ± 1.23	79.12 ± 1.15
Crude protein	21.35 ± 0.87	20.98 ± 0.92
Crude fibre	1.87 ± 0.05	1.92 ± 0.06
Ash	1.12 ± 0.03	1.15 ± 0.04
Crude fat	1.23 ± 0.04	1.28 ± 0.05

Mineral Composition

1. Weigh 0.5g of sample into a pre-weighed crucible. 2. Ignite in a muffle furnace at 450°C for 4 hours. 3. Cool and weigh. 4. Calculate the percentage of ash. 5. Calculate the percentage of total carbohydrate as follows: % Total Carbohydrate = 100 - (% M + % A + % F) (3).

Discussion

1. Weigh 0.5g of sample into a pre-weighed crucible. 2. Ignite in a muffle furnace at 450°C for 4 hours. 3. Cool and weigh. 4. Calculate the percentage of ash. 5. Calculate the percentage of total carbohydrate as follows: % Total Carbohydrate = 100 - (% M + % A + % F) (3).

F
1
14.66, 0.577%
(*V. subterranea*)
G
20
19%
B
(*V. subterranea*).
15
15
B

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140.
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