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PROXIMATE NUTRITIONAL ANALYSIS OF DRIED MORINGA OLEIFERA SEED

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ABSTRACT

To carry out proximate of dried moringa seed in order to as certain their nutritional content values. Dried seeds of moringa oleifera were plucked from moringa trees growing around at Thanjore District. The period of sampling was for 2 weeks in the month of March. The seeds were dried at room temperature and their proximate contents determined using standard analytical techniques. Ash and moisture contents were determined using the Association of Official Analytical Chemists (AOAC) method. Fat, crude fibre and protein content were determined using sox let fat extraction method and kjeldahl method respectively. In addition, carbohydrate content was determined using arithmetic difference method. Results show that the mean nutritional content of the samples were: protein 30.9 %, moisture7.4 %, crude fibre 2.6 %, Fat, 30.1 %, Ash 2.6% and carbohydrate 15.1%.

Keywords: Moringa oleifera seed; nutritional value; ash, carbohydrate, fat, moisture, fibre, protein.

1. INTRODUCTION

The Moringa tree, Moringa Oleifera has probably been the most popular plant in underutilized tropical crops. The tree is native to India but has been planted around the world and is naturalized in many locales. In the Philippines, where the leaves of the moringa are cooked and fed to babies, it is called “mother’s best friend” and drumstick tree (India). There are about 13 species of moringa trees in the family Moringaceae.

Moringa is called the “Miracle Tree” for good reason. Moringa Oleifera belongs to the monogenetic family of shrubs and trees, called Moringaceae. Also, the leaves, fruits, flowers and immature pods are edible and they form part of traditional diets in many countries of the tropics

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and sub-tropics. The oil obtained from the seeds is pale yellow, sweet and edible. It is almost odourless and possesses an appreciable test.

2. EXPERIMENTAL SECTION

2.1 Sampling

Dry seed of Moringa Oleifera were plucked from the Moringa tree growing around thanjavur. The seed was removed and spread on a clean plastic tray and air dried at room temperature for 3 weeks until no trace of water was found in it. This was done to avoid interference during analysis and also to reduce the level of water content.

2.2 Proximate analysis

The proximate compositions of the dried Moringa seed were determined using standard analytical methods. All measurements were done in duplicates and values presented in percentage.

2.2.1 Ash content determination

2g of the sample was weighed into a crucible in a muffle furnace and heated at 130^0C for three hours until it became gray ash. The dish was removed from the muffle furnace using crucible tong and placed in desiccators to cool. The weight of ash was obtained by the difference.

2.2.2 Moisture content determination

5g of the sample was then placed in a preweighed Petri dish, and then placed in an oven to dry at 130^0C for three hours. The dish and dry sample were transferred to desiccators to cool at room temperature before being weighed again. The experiments were repeated until constant weight was obtained.

2.2.3 Fat content determination

Fat was determined using soxhlet fat extraction method [10]. 250ml oil flask was washed thoroughly and dried in oven at130^0C for 30 minutes and then placed in desiccators to cool. 2g of the dried sample was then weighed accurately into labeled thimbles. Cooled oil flask was filled with 200ml hexane and boiled at 180^0C. The extraction thimble was plugged lightly with a cotton wool and the oil flask containing hexane was placed in the extraction thimble to boil and the soxhlet apparatus was allowed to reflux for three hours. The thimble was removed carefully and the hexane on top of the container was collected and drained into another container for reuse.

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When the flask was free of hexane, it was removed and boiled for an hour at 130^0C. It was finally transferred from the oven into desiccators to cool before weighing.

2.2.4 Fibre content determination

Crude Fibre content was determined by Weende's method [11]. 2g of the defatted sample was weighed into a 500ml beaker and 200ml of 1.25% H_2S0_4 was added and the mixture was boiled under reflux for 45minutes. The solution was filtered with whatman filter paper; the residue was rinsed thoroughly with distilled water until it was no more acid. The residue was transferred into a 250ml beaker and 200ml of 1.25% NaOH was added and boiled for 45minutes in a digestion apparatus after which it was filtered and rinsed with distilled water until the filtrate was neutral. The residue was transferred into a crucible and placed in electric oven at 130^oC for three hours to dry. It was then removed and placed in desiccators to cool before weighing. After weighing, the sample was incinerated, cooled in desiccators and reweighed.

2.2.5 Protein determination

Protein content of the sample was determined using the Kjeldahl method [12]. The total nitrogen was determined and multiplied by a conversion factor of 6.25 to obtain the protein content. 0.2g of powdered sample was weighed into a Kjeldahl digestion flask. 1g of $CuSO_4$ was added to the flask and 10ml conc.H_2SO_4 digested by heating under a fume food chamber till the solution digested completely and changed to blue color. The solution was carefully removed and allowed to solidify for 1hrs until a white colour was obtained. The mixture was distilled until a total of 10ml distillate was collected into 250ml conical flask was titrated with 0.1N HCl. Add 2 drops of mixed indicator (promosal green and methyl red) when the color of the distillate is light blue color change into light pink.

2.2.6 Carbohydrate determination

The carbohydrate content of the test sample was determined by estimation using the arithmetic difference method [12]. %CHO = 100 – (% fat. + % ash + % fiber + % protein)

3. RESULTS AND DISCUSSION

Table 1 shows the results of proximate analysis of dried Moringa Oleifera. The results indicated that dried Moringa seeds contained appreciable amount of crude protein content (30.9 ± 0.9%) making it to be a good source of supplementary protein for man and livestock, The results also showed that Moringa seed contain nutritious compounds

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Table 1: Proximate contents of the analyzed sample

S.NO	Parameters%	values
1	Moisture	7.4 %
2	Fat	30.1 %
3	Protein	30.9 %
4	Fiber	2.6 %
5	Ash	2.6 %
6	Carbohydrates	15.1 %

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CONCLUSION

Conclusion must be short and precise and should reflect the work or research work you have gone through. It must have same as above in introduction paper adjustment.

Proximate analysis results show that dried moringa seed is a good source of nutrients and thus, the plant might be explored as a viable supplement in both animal and human food. Other nutritional contents in moringa seed not covered in this study and the possible roles on the nutritional makeup of moringa plants are areas for further investigation in future research. Furthermore, the phytochemical constituents of moringa oleifera seed can be further explored in the search for further uses of moringa plants as herbal remedies.

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