

DETERMINATION OF BLOOD ANALYSIS OF ALBINO RAT USING AFRICAN OIL BEAN AND PUMPKIN SOURCE OF FOOD

OGIDI ODANGOWEI INETIMINEBI

Department of Science Laboratory Technology,
Federal Polytechnic, Ekowe,
Bayelsa State,
Nigeria.
oodangowei@yahoo.com

EMELI AMADI PEACE TOCHI

Department of Biochemistry,
Rivers State University,
Nigeria.

NJOKU OSITADINMA CHIEMEZIEM

Department of Science Laboratory Technology,
Federal Polytechnic, Ekowe,
Bayelsa State,
Nigeria.

ABSTRACT

The study determined the blood analysis of albino rat using African Oil Bean and Pumpkin as a source of food. The researcher employed two research questions in the study. A total of 15 albino rats were used for the study. The researchers adopted a simple laboratory experimental analysis for the study. The result of the study revealed that protein composition of blood in g/l at varying percentage of feed composite was positive. Therefore, it was recommended that African Oil Bean and Pumpkin source of food should be processed as meat source due to their high protein content in blood.

Keywords: Blood analysis, African Oil Bean, Pumpkin seed, Albino Rat.

INTRODUCTION

The African oil bean, commonly known as Ugba, is an important source of protein. It is a tropical tree in the family of leguminosae (mimosoideae) (Achinewu, 1982).

Many foods pack a lot nutritional wallop into a package, like the odd-sounding African oil bean seed. Some of this food source also produces abundance of blood when consumed. African oil bean seed can be used to make Salad or highly nutritious snack (Achinewu, 1983).

African oil bean contains up to 44% protein, with all twenty essential amino acids. The seeds also contain essential fatty acids within the seed oil, as well as many minerals, particularly magnesium, iron, manganese, copper, phosphorus and calcium, and trace amounts of vitamins. The fermentation process decreases the beans levels of vitamin and minerals to the point where no phosphorus is found in Ugba.

African oil bean seed contains saponins, or photochemical found in most vegetables, beans and herbs, which have been linked to lower cholesterol levels, although the fermentation process may reduce these levels. Patience who regularly consumed fermented oil bean seeds had a reduced risk of cancer and tobacco related disease (John, 2006). Observation shows that oil bean extracts were effective as antimicrobials and antispasmodics, as well as useful for treating Diarrhea and Epilepsy (Akah, et al., 1999).

Pumpkin (*Cucurbita pepa*) on the other hand, is an ancient food probably native to the eastern Mediterranean. The pumpkin is a trailing vine with funnel shaped yellow flowers (Carricato and Edger, 2006). Pumpkin refers to certain cultivars of squash, most commonly those of *Cucurbita pepo*, that are round, with smooth, slightly ripped skin and deep yellow to orange coloration. The thick shell contains the seeds and pulp. Some exceptionally large cultivars of squash with similar appearance have also been derived from *Cucurbita maxima* (Susan and Van, 1998).

Crunchy, delicious pumpkin seeds are high in Calories about 559 calories per 100g. In addition, are packed with fiber, vitamins, minerals and numerous health promoting antioxidants. Their high calorie content mainly comes from protein and fats. On the positive side, nuts are especially rich in mono-unsaturated fatty acids (MUFA) like Oleic acid that aid lower Cholesterol and increases good HDL cholesterol in blood. Research studies suggest that Mediterranean diet, which is liberal in mono-unsaturated fatty acids help to prevent coronary disease and strokes by favoring healthy blood lipid profile. Pumpkin seeds are very good source of antioxidants, vitamin E (Yadav, et al., 2010).

SIGNIFICANCE OF THE STUDY

The study is going to be of benefits to health institutions and nutritionist.

For health institutions, the findings of the study will give background information on the blood analysis with protein level of Pumpkin seed and African Oil bean.

For nutritionist, the value obtained from the study will enable them keep record of the protein value of African Oil Bean and Pumpkin Seed.

PURPOSE OF THE STUDY

The study was based on Determination of Blood Analysis of Albino Rat using African Oil Bean and Pumpkin Source of Food. The study therefore intend to:

1. State the procedures for blood analysis.
2. Determine the protein values of blood analysis.

RESEARCH QUESTIONS

The following research questions guided the study:

1. What are the procedures for blood analysis?
2. What are the protein values for blood analysis?

SCOPE OF THE STUDY

The study is limited to African Oil Bean Source and Pumpkin Seed. The study was also restricted to collection and blood analysis of African Oil Bean Source and Pumpkin Seed.

METHODS

The researchers adopted experimental research design. The population consists of 15 Abino Rats. All the populations were used as samples for the study. The total carbohydrate content is determined by difference: $(100\% - [\% \text{moisture} + \% \text{protein} + \% \text{fat/oil} + \% \text{ash}])$ (Suzanne, 2002). They were allowed to acclimatize for a period of 7 days (1 week), grouped, fed with the products (African Oil Bean and Pumpkin Seed) and their blood samples were collected for blood analysis. The African Oil Bean and Pumpkin Seed were fed with varying percentage (100%, 50% and 30%). After feeding for 7 days (acclimatization), they were weighed and fed for another period of 14 days at varying percentages. Blood sample were used as means of data collection. Simple percentages were used as method of data analysis.

RESULTS

RESEARCH QUESTIONS 1

What are the procedures for blood analysis?

Procedure for Blood Analysis (Determination of Total Protein in Plasma)

The blood samples collected from the Albino rats were centrifuged in other to get the blood plasma. The blood plasma was used for the analysis.

After centrifuging the blood samples, blood plasma were collected from the blood samples using an automatic pipette into plain bottles. 20 μ L of blood plasma from the plain bottles were pipette into different test-tubes for further analysis.

REAGENT PREPARATION

Randox control - 20 μ L of Brovine Precipitate Control.

Blank - 20 μ L of distilled water

Standard- 59.89g/l (known)

There are a total of 18 samples.

Therefore, we have 5ml of working reagent. 20ml of distilled water were used to dilute 5ml of working reagent.

20ml: 5ml of working reagent. 1ml (1000 μ L) of working reagent was pipette into these different test-tubes and shake after each addition of working reagent. The samples were incubated for 30mins at a temperature of 25⁰C. Their various absorbances were read using a spectrophotometer at a wavelength of 546nm.

RESEARCH QUESTIONS 2

What are the protein values for blood analysis?

TABLE 1: Mean \pm STD of Protein Value for Blood Analysis.

SAMPLE	0%(g/L)	30%(g/L)	50%(g/L)	100%(g/L)
Control	56.7 \pm 3.54	-	-	-
African Oil Bean Meat Substitute	56.7 \pm 3.54	54.3 \pm 0.92	64.4 \pm 8.22	64.4 \pm 3.82
Pumpkin seed meat substitute.	56.7 \pm 3.54	-	69.7 \pm 0.00	-

Table 1 above showed the protein composition of blood in g/l at varying percentage of feed composite (Albino rats feed and meat substitute).

DISCUSSION OF RESULTS

The results obtained from research question 1 indicate that blood sample of Albino rat were centrifuged in other to get the blood plasma. Table 1 showed the result of protein composition of blood in g/L at varying percentage of feed composite (Albino rats feed and meat substitute). The table revealed that at 0% meat substitute (no substitute added, just normal feed) gave the same results (56.7g/L) for all samples, indicating that the normal feed, fed to these Albino rats (control) had the same value in g/L of blood. At 30% meat substitute, Soya Bean Meat Substitute gave the highest blood protein content (64.4g/L). At 50% meat substitute, Soya Bean Meat Substitute also gave the highest blood protein content (71.7g/L).

These high values may have resulted from the complementary effect of feed with Soya Bean Meat Substitute. At 100% Meat Substitute, African Oil Bean Meat Substitute gave the highest blood protein content (64.4g/L).

RECOMMENDATIONS

The high percentage of protein obtained from African Oil Bean and Pumpkin Seed from plant source indicates very high protein content. The blood value obtained is very high. Therefore it was recommended that:

1. African Oil Bean and Pumpkin seed should be used as Meat Substitute for patients that have problems associated with heart disease.
2. As a result of the high protein content, its consumption is needed by vegetarians.

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