PROJECT REPORT

ON

"Proximate Analysis of Rosella Leaf and Pectin Extraction from Rosella Leaf"

SUBMITTED TO

Prof. Dr. MdBellalHossain
Head
Department of Nutrition and Food Engineering
Daffodil International University

SUBMITTED BY

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Date of Submission: 23/12/2018

LETTER OF TRANSMITTAL

23 December 2018

To
Professor Dr. Md. Bellal Hossain
Head
Department of Nutrition &Food Engineering
Daffodil International University

Subject: Submission of Project Report**.**

Dear Sir,

It is a great pleasure and honor for me to have the opportunity to submit me project work report on **"Proximate Analysis of Rosella Leaf and Pectin Extraction from Rosella Leaf** "product as a part of the Nutrition and food engineering (NFE) program curriculum. I have prepared this report based on the acquired knowledge during my project period.it is great achievement to work. Without yourhelp, this report would have been impossible to complete. This report is based on "pectin extraction from rosella leaf". I have got the opportunity to work in your University on product development.

This is the first times this project gave me both academic &practical exposures. Firstly of all I have gained knowledge about the organizational culture of a prominent on pectin extraction from rosella leaf of our country. Secondly, the project gave me the opportunity to development a network with the corporateenvironment. I therefore, would like to place this report to your judgment andsuggestion .your kind advice will encourage me to perform better planning in future.

Sincerely Yours

Mst.Jami Parvin
ID: 161-34-478
Dept. Nutrition and Food Engineering
Daffodil international university

LATTER OF AUTHORIZATION

Date: 23 December 2018

To
Professor. Dr. Md. Bellal Hossain
Head
Department of nutrition and food engineering
Faculty of allied health sciences
Daffodil international university

Subject: Declaration regarding the validity of the project report.

Dear Sir,

This is my truthful declaration that the "project report". I have prepared is not a copy any thesis report previously made any students.

I also express my honestly confirmation in support to the fact that the said thesis report has neither been used before to fulfill my other course related not it will be submitted to any person a authority in future.

Sincerely yours,

Mst. Jami Parvin
Id:161-34-478
Department of nutrition and food engineering
Daffodil international university

CERTIFICATE APPROVEAL

I am pleased to certify that the project report on "**Proximate Analysis of Rosella Leaf and Pectin Extraction from Rosella Leaf" at** Daffodil International University conducted by **Mst.Jami Parvin**, bearingrespectively **ID No: 161-34-478**of the department of Nutrition &Food Engineering has been approved for presentation and defense/viva-voice.Under my supervision Mst. Jami Parvin worked in the laboratory at Daffodil International University.

I am pleased to hereby certify that the data and findings presented in the report are the authentic work of Mst.Jami Parvin. I strongly recommended the report presented by Mst. Jami Parvin for further academic recommendations and defense/ viva-voice. Mst. Jami Parvin bears a strong moral character and a very pleasant personality. It has indeed a great pleasure working with him. I wish him all success in life.

Prof. Dr.Md.Bellal Hossain
Head
Department of Nutrition and Food Engineering
Daffodil International University

ACKONWLEDGEMENT

In the preparation of this report,I would like to acknowledge the encouragement and assistance give to me by a number of people.At first,I would like to express my gratitude to my creator the almightily Allah for enable me the strength and opportunity to complete the report in time successfully. I am grateful to each and every people who are involved with me in every phase of my life.

I am grateful to my parent's without whom I cannot be here. Without the support of my parents, I could not be able toachieve my objects and goals.

My deep gratitude and sincere thanks to the honorable Dean, Department of Nutrition and Food Engineering, **Professor Dr. Ahmed Ismail Mostafa,** for this kind cooperation and encouragement to accept this Degree.

I am deeply gratitude and sincere thanks to the honorable head, Department of Nutrition and Food Engineering, **Professor Dr.Md. BellalHossain,** for his whole hearted supervision during my organization attachment period.

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I would like to express our warmest thanks RiazMahamudand Imdad Hossain, Assistant Lab Officer, Department Nutrition & Food Engineering.

I express our deep gratitude to the office/labs stuff of the Department of Nutrition & Food Engineering under Faculty of Allied Health Sciences, Daffodil International University.

“THE RESEARCH WORK
IS DEDICATED
TO

MY BELOVED PARENTS”

ABSTRACT

Hibiscus sabdariffa L. (Roselle) is a medicinal substance. It became very popular all around the world because it's like an acidic taste and nice flavor like as tea leaf. It has been applied as a primary as a food, herbal drinks, also applied as an industrial flavoring agent.Plant contain a lots of chemical compound which is most important for our healthy life, some amount of protein, dietary fiber, ascorbic acid(vitamin c) etc. And also extract pectin from rosella leaf which is used for the preparation of the jam and jelly. Pectinis anaturally occurring substance. Firstlycollect the rosella leaves for start research work and blanching at 80^0 temperature with little amount of NaCl. Drying the rosella leaves apply the common type of solar dryer. Most of the dryer temperature range was 50-60 degreetemperature until moisture content below 10 crashing with blending machine. Sample weight was 62.70 grams. Sample preparation for the measurement of the moisture content, dietary fiber,ash,vitamin C,Protein content and also extract naturally pectin from the rosella leaves without use any chemical. I measure the ascorbic acid used the spectrophotometric method with compare the standard curbed. When the moisture content is measured of the sample (3g) moisture content found 6.4%. Ash 6.67%, TSS &TDS 0.3339% &23%. I measured the protein content ofsample (0.4g) sample where 6.56% protein was found. Rosella plant is rich in citric acid,so its use for making the jam and jellies.

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Chapter: 01

1.1 INTRODUCTION:

Hibiscus sabdariffa l. (roselle) is a yearly herbaceous plant of the family malvaceae[1]. Roselle is a sunshine lasting plant, relatively easy to grow, and can be grown as part of multi-cropping system [2].Active substance of rosella plant contain expected to cause decreasing effect on high blood sugar. Pectin is a structural heteropolysaccharide contained in the primary cell walls of terrestrial plants. Polysaccharides are polymeric carbohydrate molecules composed of long chains of monosaccharide units bound together by glycoside linkages, and on hydrolysis give the constituent monosaccharide's or oligosaccharides[3]. Hypertension is a common condition in western nations and is associated with significant morbidity. Hibiscus sabdariffa (rosella) has a long history of traditional use across multiple continents and cultures for a number of chronic illnesses, including hypertension [4]. Hypertension is a common condition in western nations and is associated with significant morbidity. Hibiscus sabdariffa (rosella) has a long history of traditional use across multiple continents and cultures for a number of chronic illnesses, including hypertension [5].rosella a potentially part of dietary fiber. The roselle plant (hibiscus sabdariffa l.) Is used principally for its best fibers and for its fruit, the latter being utilized for making jelly and preserves. The silky, soft and light-colored fiber obtained from this plant has practically the same chemical and physical properties as jute (corchoruscapsularis l.) Fiber and, therefore, offers a very satisfactory jute substitute[6-9].

Botanical Name: *Hibiscus sabdariffa*

1.2 Benefits of rosella plant:

There are many benefit of Rosella, especially for herbal treatment. Rosella flower sheath, known as the herbal tea drink called rosella. Rosella has a citric acid,anthocyanin, hibiscus, vitamin C, protein, and flavonoid. of various substances are the most interesting is flavonoid substance called gossypectine, hibiscetine and sabdaretine, the antioxidants that are strong enough to be used against free radicals, which damage the human body.[7-10]

Rosella is an attractive annual shrub to 1.5 m high with large, lobed reddish leaves and attractive yellow hibiscus-like flowers.

Roselle (Hibiscus sabdariffa L.) is more than an eye-catching crop and has been used in number of dishes, beverages and conventional remedy of diseases for centuries. It is popular for its edible fleshy calyces and leaves that are used for making salads, tea, juices, jams, jellies, ice-cream, and many other products. In many countries of the world fresh calyces of Roselle are harvested to produce pro-health drink due to its high vitamin C and anthocyanin'scontents [10-13]. But in Bangladesh the Roselle leaves and calyces are used as vegetables and its fiber is used as jute substitute. Roselle is also famous for its high nutritional and medicinal values. Nutritional analysis of the calyces of Roselle showed that they are high in calcium, iron, niacin and riboflavin. It is also a source of antioxidants, anthocyanin's which acts as free radical scavengers and inhibit lipid per-oxidation. Consumption of Roselle products such as fresh juice, tea, jam, jelly or in the form of capsule rich in anthocyanin protect human body from the harmful reaction of free radical by antioxidant activity. Roselle is a multipurpose crop and has great potential to increase the income of farmers, producers, processors of Bangladesh by fetching higher market price both from export and local market. [14]

1.3 Nutritional factors: Rosella plant raw-100grams

Nutrients	Calyxes	Seeds	Leaves
Protein [g]	2	28.9	3.5
Carbohydrates[g]	10.2	25.5	8.7
Fat [g]	0.1	21.4	0.3
Vitamin A [I.E.]	-	-	1000
Thiamine [mg]	0.05	0.1	0.2
Riboflavin [mg]	0.07	0.15	0.4
Niacin [mg]	0.06	1.5	1.4
Vitamin C [mg]	17	9	2.3
Calcium [mg]	150	350	240
Iron [mg]	3	9	5

1.4 Limitation of the study:

Everything has some limitations.so this research has some limitations. First limitation was time, insufficient time was not enough to conduct the research properly.to make a perfect and clear research high technology and machineries required which was not enough to the laboratory.
Technical support was not enough to conduct this research properly.
Instrument and other necessary things were not enough for the present research.

1.5 Origin of the Study:

Thesis or project report is graduation for all university students. Daffodil international university &department of NEF provide thesis opportunity for students in the university laboratory.

Purpose of the study about pectin extraction from rosella leafs are follows,

1. To find out unique information about how to extract pectin from rosella leaves.
2. To learn about the specific methods such as spectrophotometric method for ascorbic acid (vitamin –C) analysis.
3. To fulfil graduation requirements.
4. To learn about the apparatus related to this project.
5. To learn about how to use theoretical knowledge in practical.
6. To became shelf-dependent**.**

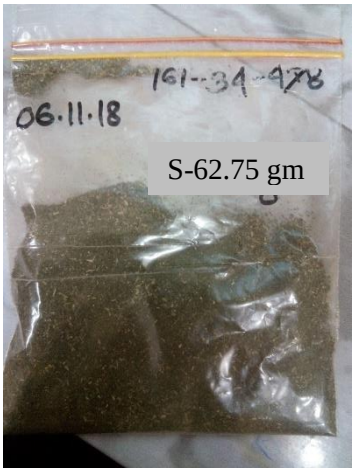
Chapter: 02

Materials and Methods

2.1Sample collection:

Fresh rosella leaves collected from the rosella tress grown at the garden of Gozaria at daffodil international university. I took rosella leaf 350 gram.

2.2 Sample preparation:



After sample collection blanching with little amount ofNacl at the temperature 80-90 degree.[15] Drying with solar drier at 50-60 degree temperature until moisture content below 10, afterdryingcrashing with blendingmachine, then weighting with digital balance, final sample was 62.658 gram.

2.3 List of equipment named which is used for sample preparation purpose:

Sr.No	Equipment
1	Analytical balance
2	Solar dryer
3	Dedicators

2.4 Determination of moisture of the sample:

The purpose of this analysis was to determine the water content within the sample. Firstly I took weighting the crucible lid (W1) then place around 3g of the sample into crucible lid (W2), then place the crucible lid with sample in the drying oven at 105oC for 1 hour. After 1 hour put out it and keep it into the Desiccator for 30 minute. , then again I took weigh the crucible lid with dry rosella leaf sample using the measuring balance (W3) [16].

2.5 Determination of Ash Analysis:

Dry ashing is the most standard method to determine ash content of a sample. The total ash content of a foodstuff is the inorganic residue remaining after the organic matter has been burnt away.at first I took a clean crucible lid and measuring with digital measuring balance. For determination of the ash content using Muffle furnace (electric) for550- 600 degree temperature .place around the Crucibles in a muffle furnace at 600oC for 5 to 6 hour. After 6 hours turn off the muffle furnace and keep it 2 hours for cooling purpose. Then I transfer the crucibles from furnace to a desiccator, and cool to room temperature. I weigh as quickly as possible to prevent moisture absorption [17].

2.6 Determination of TSS of rosella leaf sample:

Total suspended solid (TSS) is the dry-weight of suspended particles, that are not dissolved, in a sample of water that can be trapped by a filter that is analyzed using a filtration apparatus.at first I took 100 ml of distilled water in a beaker, then I measuring the weight of filter paper (W1), now I filter the water sampleby filter paper. After filtering then I dry it by drying oven, after drying again I measure the filter paper (W2).

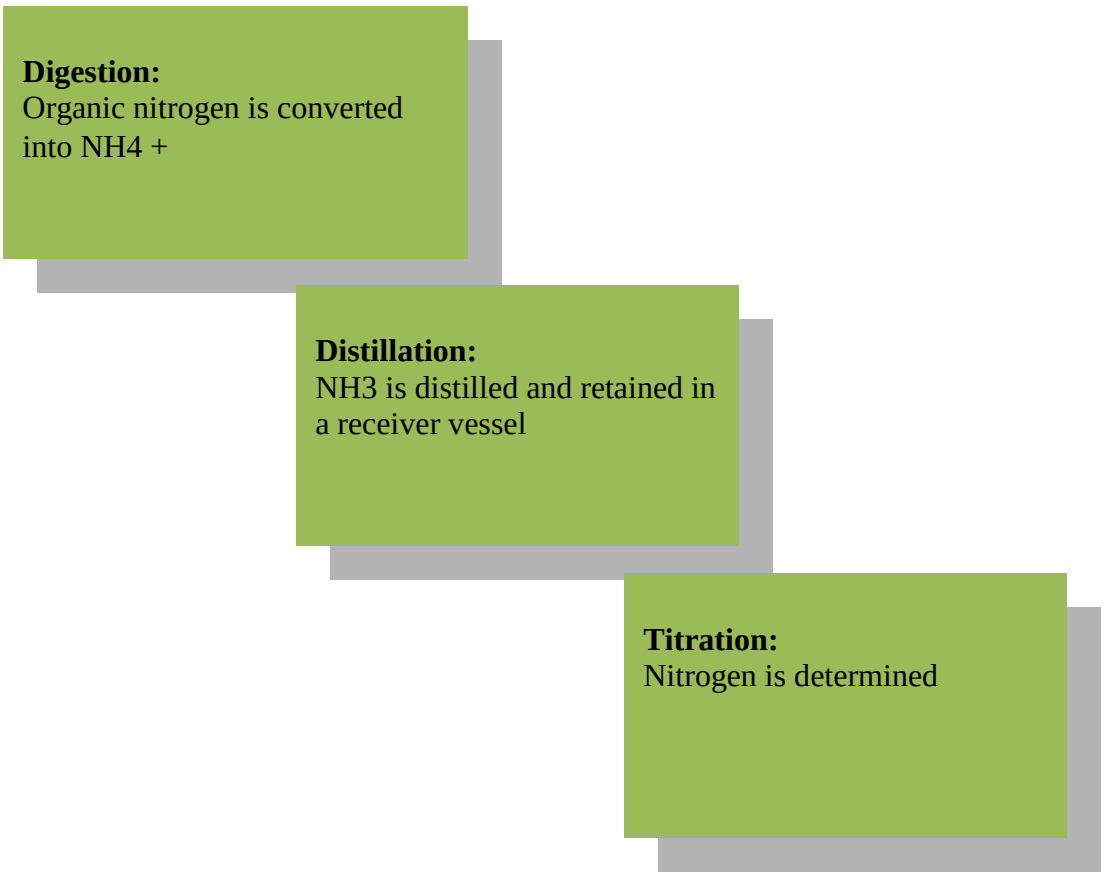
2.7 Determination of TDS of rosella leaf sample:

Is a measure of the dissolved combined content of all inorganic and organic substances contained in a liquid in molecular, ionized or micro-granular (colloidal sol) suspended form. Firstly I took measure the weight of the beaker, took100ml water sample into the beaker .now I dry it for removing water by oven drying, after removing water again weighting the beaker.

2.8Nitrogen determination by kjeldal methods:

The Kjeldahl method is used to determine the nitrogen content in organic and inorganic samples. For longer than 100 years the Kjeldahl method has been used for the determination of nitrogen in a wide range of samples. The determination of Kjeldahl nitrogen is made in foods and drinks, leaf, meat, feeds, cereals and forages for the calculation of the protein content [19].

The Kjeldahl procedure involves three major steps:



Digestion:

The aim of the digestion procedure is to break all nitrogen bonds in the sample and convert all of the organically bonded nitrogen into ammonium ions (NH4 +). Organic carbon and hydrogen form carbon dioxide and water. In this process the organic material carbonizes which can be visualized by the transformation of the sample into black foam. During the digestion the foam decomposes and finally a clear liquid indicates the completion of the chemical reaction. Firstly I took .4g of rosella leaf sample H2SO4 10 ml and 2g digestion mixer with 100 ml volumetric flux .then put it on digestion flux .at first heat slowly then increase the heat for 3-4 hours. The end point will be no white smoke H2SO4 and solution will be crystal clear I carefully observed it and finally cool the sample for roomtemperature.then dilute with water and transferred to the distillation unit.

Sample catalyst

Protein (-N) + H2 SO4 ⟹ (NH4) 2 SO4 + CO2 + H2 O

Distillation:

During the distillation step the ammonium ions (NH4 +) are converted into ammonia (NH3) by adding alkali (NaOH). The ammonia (NH3) is transferred into the receiver vessel by means of steam distillation. I poured the solution in a conical flux with and make it 100 ml level using distilled water. I took 10 ml from that conical flux to the distillation flux. I took 150 ml distilled water and 10 ml of 40% NaOH to the distillation flux, I took 25 ml of .1N HCLand 3-4 drops of methyl red (1%) in the trapping conical flux. I used three distillation flux forthese procedure where one of these are be blank (there was no sample only I took 150 ml distilled water with 10ml of 40% NaOH).I used three trapping solution in 3 conical flux remaining the same thing. Then I set up the condenser and start the process for 30 minute.

Titration:

I filled the burets with .1 N NaOH .I done the titration three time with 3 trapping solution the end point will be color change from pink color to light yellow.

Blank =9.5
Sample1=8.3,Sample 2=9.2

2.9 Spectrophotometric determination of vitamin C of rosella leaf sample:

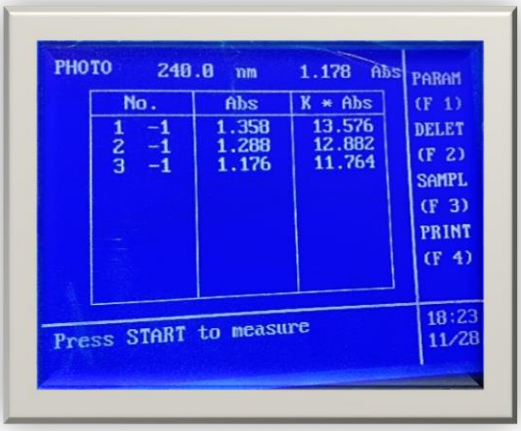
Human health is very important to our survival. Vitamins help the human to maintain a healthy diet. They are serve as essential components of the specific coenzymes and enzymes participating in metabolism and other specialized activities. Among the vitamins, vitamin C (ascorbic acid) is an essential micronutrient required for normal metabolic function of the body Humans and other primates have lost the ability to synthesizes vitamin c as a result of a mutation in the gene coding for L-gulonolactone oxidase, an enzyme required for the biosynthesis of vitamin c via the glucuronic acid pathway Vitamin C plays an important role as a component of enzymes involved in the synthesis of collagens and carnitine. Vitamin C is the major water-soluble antioxidant within the body. It lowers blood pressure and cholesterol levels, Not only does it vitamin c intake markedly reduce the severity of a cold, it also effectively prevents secondary viral or bacterial complications.

Standard vitamin C (ascorbic acid) solution:

At first I prepared the standard ascorbic acid solution, I took 0.05 g standard crystalline ascorbic acid was dissolved in 100 mL of distilled water to prepare 500 ppm standard stock solution. Then I took 8 piece of 10 ml of volumetric flux. I took 1,2,3,4,5,6,7 and 8. I keep.
5ml 1ml, 1.25ml, 1.50ml,1.75ml,2ml,2.25ml,2.50ml ascorbic acid solution and I took spectrophotometric absorbancewith 240 wavelength.

Sample preparation:

At first I took 10 gm. of blended rosella leaf sample in a conical flux,sample was homogenized with about 50 mL of 5% metaphosphoric acid-10% acetic acid solution. Then it was quantitatively transferred into a 100 mL volumetric flask and I was shaking gently until a homogeneous dispersion was obtained. Then it was diluted up to the mark by the 5% metaphosphoric acid. Then the solution was filtered and the clear filtrate was collected for the determination of vitamin c in that of rosella leaf sample. Then I took spectrophotometric absorbance with 240 wavelength.

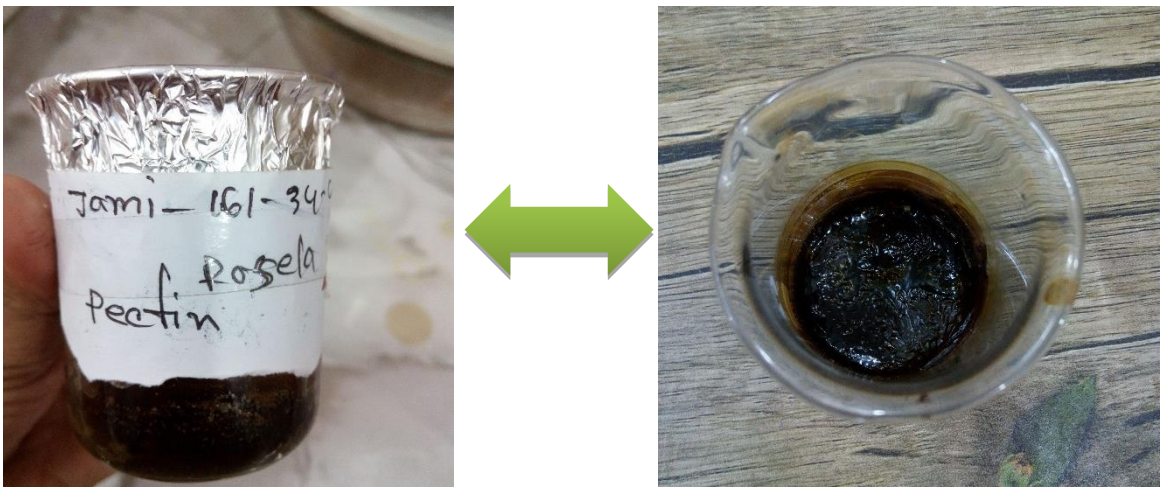


2.10 Fiber analysis:

To complete fiber analysis, firstly I took 250 ml beaker and add 100ml water and placed it on water bath .in second step ,I took an another beaker of 250ml and add 5gm of rosella leaf powder sample,1ml H2SO4 and 100ml distilled water .then placed it on oven for 30 minute at 100degree temperature, after 30 minute I keeping out the product from oven and made it ready for filtering by washing water by after until H2SO4 remove from the filter paper .I was washed 6 time and then I am sure that H2SO4 remove from the product. I took red litmus paper and placed into the product .when it turns into blue then it was finalized that H2SO4 was removed .after removing of H2SO4, then I applied the same process for NaOH. I took 250ml beaker and add 100ml distilled water and placed it on water bath .on second step I took another 250 ml beaker and add 5 gm. of sample,1 ml NaOH and 100ml distilled water. Placed it on oven for 30 minute at 100degree temperature, after that I keeping out the product from oven and made it ready for filtering by adding water after by until of l NaOH remove from the filter paper to complete the removal of NaOH. I took blue litmus paper and placed into the product. When it turns into re then it was finessed that NaOH was removed.
Finally,the product which I got placed into the oven for 1 hour at 100degree temperature until it was completely dried .then I weighting the sample after keeping from oven .it was finalize that rosella leaf powder contains 10.90% fiber.

2.11 Pectin extraction from sample (Rosella leaf):

For extraction pectin, at first I took 200ml of distilled water and 25gm of rosella leaf powder. Then boil it for 10minute until a thickly .I took a beaker and weighit, it was 34.605gm.then I kipping on the beaker for cooling at normal freeze. Aftercooling I need a liquidthicklyresidue and I found what I want. Then I keeping it on a dryer at105 degree temperature for 1 hours. Afterthat, finally I found thickly gelatinous pectin.



Chapter: 03

Reagent preparation:

3.1 40% NaOH solution:

Firstly I need to a conical flux washing properly, then added 40 gm.of 100%NaOH in the conical flux and I also added 100ml of distilled water and shaking properly. Shaking continue until dissolved it, all most 30 minute need to properly dissolve it.

3.2 0.1 N HCL solution:

1 gm. of sodium hydroxide added with 250 ml distilled water and then shaking it until dissolved the solution.

3.3 Digestion mixture:

The measure of assimilation blend (salt in addition to metal impetus) prescribed by the Brazilian National Institute of Science and Technology in Animal Science (INCT-CA; strategy N-001/1) is 2.0 grams per aliquot to be processed (200-250 mg). The assimilation blend is made out of ten sections of salt (sodium sulfate or potassium) to one a player in metal impetus (copper sulfate). Diminishing the measure of the processing blend per test and expanding the proportion of salt to metal impetus in the assimilation methodology of the Kjeldahl technique could be a choice to decrease the previously mentioned issues.

3.4 1%sulfuric acid and sodium hydroxide:

For preparing 1% H2SO4, at first I took 250 ml of conical flux, then I took 1ml of 100% H2SO4 and 100ml of distilledwater. Then I shaking it until properly dissolve it. And the same process for 1% NaOHsolution, I took 1ml of NaOH and 100ml distilled water, thenshaking it for properly dissolve it.The acid and base are used to removal of other stuff from the sample, and leave only fiber content. There challenge in that when we remove the sugar and starch and the protein and carbohydrate9the base hydrolysis), we should have fiber left.But some of the fiber is lost to the two stage chemical of making hydrolysis we just ran the sample through. We are left with the challenge of an estimate (the determination) of the crude fiber on what we know about the sample, about the procedure and the quantity of the fiber we observe at the end of the chemical process.

3.5 5%metaphosphonic acid:

Fifteen grams of solid metaphosphoric acid were dissolved in mixture of 40 mL of glacial acetic acid and 500 mL of distilled water in a 500 mL volumetric flask. And dissolve the solution.

Chapter: 04

Result and Discussion

RESULT

4.1 Result of moisture content:

Sample weight =3 g

Crucible weight=21.879g

Crucible weight +rosella sample=24.879

After dry, crucible +sample weight=24.687g

Mass of water (W2-W3) = (24.879-24.687) =0.192g

% moisture = loss in weight/weight in sample*100

0.192/3*100=6.4%

Moisture of the rosella leaf =6.4%

4.2 Result of Ash Analysis:

Total sample=3g

Weight of crucible weight=21.879g

Crucible weight +rosella leaf sample=24.879g

Crucible +after drying sample=22.076g

After drying sample -Crucible weight =22.076-21.879=0.197g

% ash = weight of residue/weight of sample*100=0.197/3*100=6.6%

% ash content of rosella sample =6.6%

4.3 Result of TSS of rosella leaf sample:

Total sample =5 g

Water =100ml

Residue =3.418g

Filter paper weight=1.723g

TSS=sample residue-filter paper weight/total sample weight=3.418-1.723/5=0.333g

TSS=0.339 in 100ml water with sample.

4.4 Result of TDS of rosella leaf sample:

Total sample=5gm

Water=100gm

Biker weight=52.265gm

Filtered sample=3.85gm

TDS=filtered sample –biker weight/total sample weight=52.265-3.85/5=9.6%

4.5 Result of nitrogen determination by kjeldal methods:

Calculation=$\frac{(B-S)\times 1.4\times 10\times 6.25\times 0.1}{sample\ weight}$

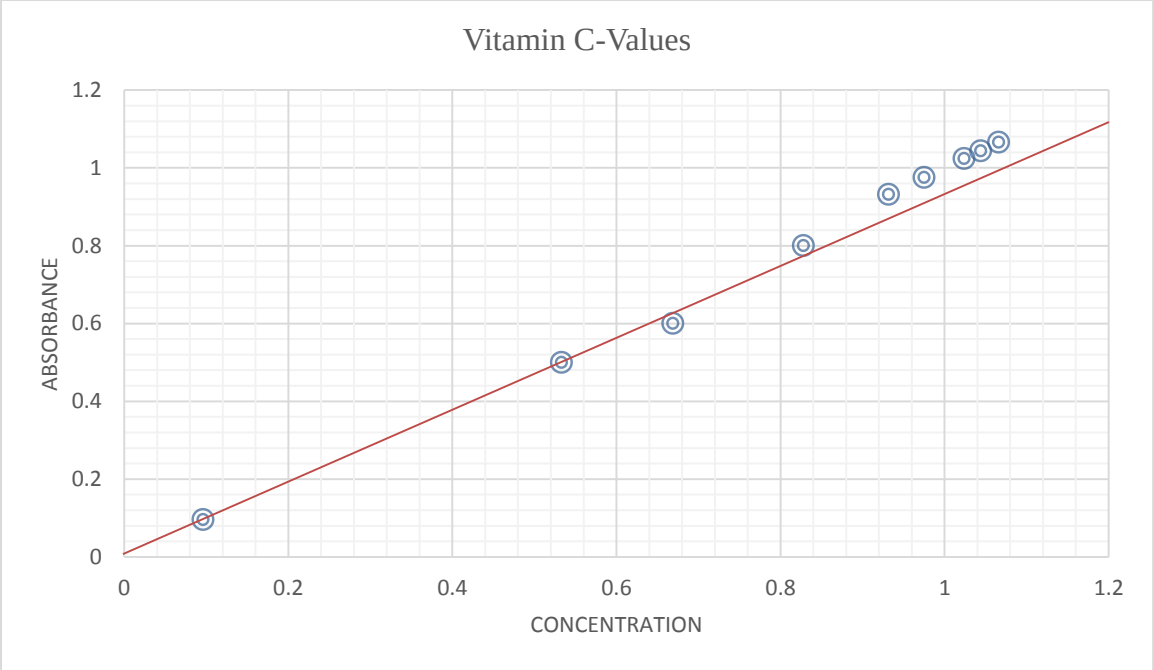
$=\frac{(9.5-9.2)\times 1.4\times 10\times 6.25\times 0.1}{.4}$

=6.56%

4.6 Dietaryfiber:

Weight of dietary fiber=10.90%

4.7 Result of ascorbic acid (vitamin-C) of rosella leaf:



From the graph we can find Calibration equation.
We know, Calibration equation, Y=mX+C
Where, "m" is the slop of the graph.
"C" is the intercept.
We know that slop,

$$M = \frac{Y2-Y1}{X2-X1}$$

From the graph, $(X_1, Y1)=(20, 0.533)$ and $(X_2, Y_2)=(25, 0.669)$
So,

$$\text{Slop, } m=\frac{0.669-0.533}{25-20}$$

$$=\frac{0.136}{5}$$

$$=0.0272$$

And the intercept,

$$C=0$$

So, Calibration equation, $Y= 0.0272 X + 0$
Sample 1 concentration,
If absorbance is 0.533 for 20ppm concentration
So, the absorbance is 1.351for $(20\times1.351) \div 0.533$
=50.69 ppm

$$= \frac{50.69\ mg}{1\ kg}$$
$$= \frac{50.69 \times 100}{1000}$$
=5.06mg/100g

At the same way,

If the absorbance is 1.350, Concentration is = (20×1.350) ÷0.533

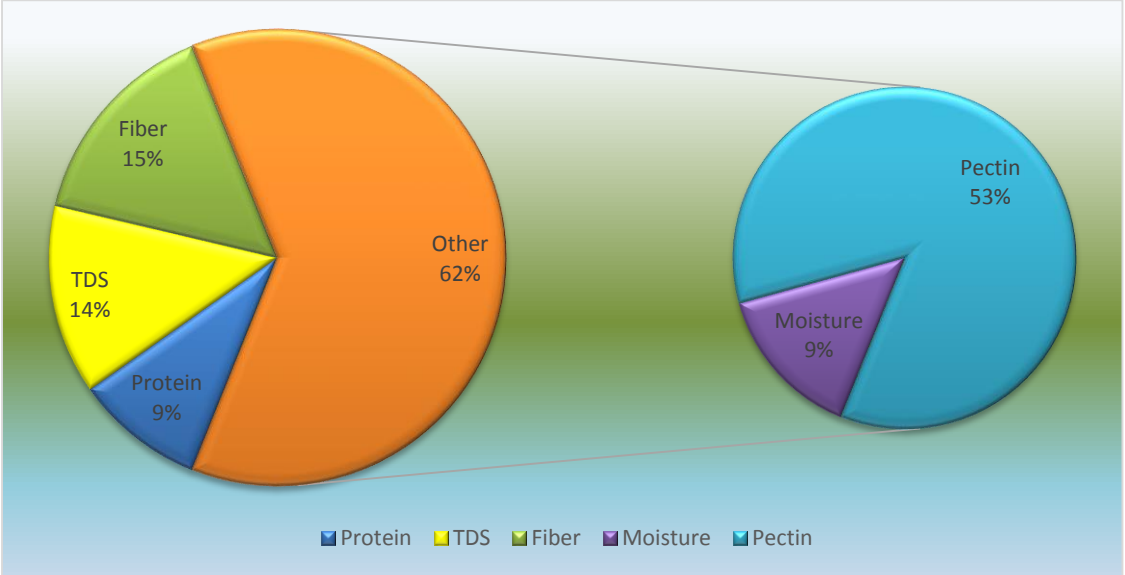
=50.65ppm

$$= \frac{50.65\ mg}{1\ kg}$$
$$= \frac{50.65 \times 100}{1000}$$
=5.06mg/100g

4.8 Pectin:

Rosella leaf pectin contain 38.90%

4.9 Discussion:



Rosella became very popularall around the world because of its characteristics like taste and flavor pungency. And rosella is the safe medical plant having various medically important compounds called phytochemicalsis well known for delicacy and also for its nutritional and medical properties. The applications of the plant in managing different medical problems including cancer, inflammatory disease and different cardiovascular problems, ability to increase urination, relief during hot weather and treatment of cracks in the feet ,bilious ,sores and wounds. Rosella are the used for their antimicrobial, emollient, antipyretic, diuretic, anti-helminthic, sedative properties and as a cough remedy.

Chapter: 05

5.1 Conclusions:

Hibiscus sabdariffa L. (Roselle) is a medicinal substance. It became very popular all around the world because it's like an acidic taste and nice flavor like as tea leaf. It has been applied as a primary as a food, herbal drinks, also applied as an industrial flavoring agent. They are rich in vitamin, minerals and vary unique plant compound rosella is very low in saturated fat,cholesterol,and sodium.it is a also good source of dietary fiber. Also contain thiamine, Ironetc. Rosella help to weight loss, relivepain. Skin care remedy.

Present work aimed to identify the vitamin Cprotein.TDS,TSS,dietary fiber,moisture content and also extract pectin from rosella leafs. The study conclude that vitamin C contents5.06mg/100gm with the row sample. Protein contents 6.56% per .4 gm. of sample.TDS contents 9.6% per 5gm of sample's contents 0.333% per 5 gm. of sample. Dietaryfibercontents 10.90% per 5 gm. of sample. Moisture contents 6.4% per 3 gm. of sample. And pectin extract from rosella leaf 38.90% per 25 gm. of sample. This work may provide necessary information to the researcher for drying rosellasample and the preparation of innovative product from rosella pectin compound such as jam and jelle.furthur nutritionist as well as diet conscious people may take into account. Theobserved value in the diet chart considering the removal of vitamin c deficiency in diet. Rosella plant healthy for life and people also used for cooking different types of recipe.

Reference:

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