APPENDIX-I

QUESTIONNAIRE CUM INTERVIEW SCHEDULE FOR CARDIAC PATIENTS

I. BACKGROUND INFORMATION

District :
Block :
Village :
Caste :

II. DEMOGRAPHIC PARTICULARS

Patient name :
Address :
Gender : Male/ female
Age :
Community :
Religion :
Marital status : Unmarried / Married / widowed / Divorcee

III. SOCIOECONOMIC PARTICULARS

Educational qualification : Illiterate / Elementary / Middle School / High School / Se. Sc / Diploma / Graduate / PG / Any other
Occupation : Farmer / Labourer / Self employed / Unemployed / Government employee / private / Any other

Income group : Low / Middle / High

Total family income per month -------------------------(Rs)

Income from other sources:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Sources</th>
<th>Amount(Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agriculture</td>
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<td></td>
<td>Horticulture</td>
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<td></td>
<td>Business</td>
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<td>Service / Pension</td>
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<td>Daily wages</td>
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<td>Any other</td>
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</tbody>
</table>

Approximate monthly expenditure

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Food</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td></td>
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<tr>
<td>Self</td>
<td></td>
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<tr>
<td>------</td>
<td>---</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td></td>
</tr>
<tr>
<td>Any other</td>
<td></td>
</tr>
</tbody>
</table>

Type of family : Nuclear / Joint / Extended

Religion : Hindu / Christian / Muslim / Sikh

Community : Forward / Backward / Schedule caste

Type of residence : Urban / Semi urban / Rural

Total members in the family :

Composition of the family:

<table>
<thead>
<tr>
<th>s.no.</th>
<th>Relation to Subject</th>
<th>Age</th>
<th>Sex</th>
<th>Educational Qualification</th>
<th>Occupation</th>
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</thead>
<tbody>
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</tbody>
</table>

House : Rented / Owned / leaned / Any other

Type of house : kaccha / Pucca / Mixed

Do you have your own land holding? Yes/ No

If yes, then
Produce from land: For subsistence / Subsistence and Sale / Any other

Do you rare animal

Yes/ No

Milk production per day

-----------------------

(liters)

Milk consumption per day

------------------------

------------------------

IV DIETARY INFORMATION

Number of meals per day-

Once / Twice / Thrice / More

Regularity of taking meals –

Regular / irregular

Eating habits –

Vegetarian / ova-vegetarian / non-vegetarian

If non-vegetarian, state frequency of consumption

Daily / Weekly / Fortnightly / Monthly / Rarely

What fat is used as medium of cooking

Mustard oil / Butter / Ghee / Refined oil / Hydrogenated fat

Has doctor prescribed you to reduce fat intake -

Yes/ No

If yes, have you modified its consumption -

Yes/ No

If yes, how?

Do you have a knowledge about the nutritional requirement for the cardiac patients-

Yes/ No

If yes than what type?
Are you allergic to any food stuff- Yes/ No

If yes, mention

Do you aware of the concept of antioxidants Yes/ No

resent in frits and vegetables in curing cardiac disease

If yes, then what are the antioxidants rich

fruits and vegetables preferred by you

more frequently

Do you know about bad cholesterol and good Yes/ No

cholesterol

If yes, then types

Do you aware about harmful effects of refined foods Yes/ No

How frequently you take refined foods Daily / weekly /Monthly

Do you avoid some food materials?

If yes, then

<table>
<thead>
<tr>
<th>Cereals</th>
<th>Vegetables</th>
<th>Pulses</th>
<th>Fruits</th>
<th>Milk &amp; milk products</th>
<th>Oils / Fats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
General dietary pattern before the onset of Heart disease

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Meal</th>
<th>Item</th>
<th>Ingredients</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Early morning</td>
<td></td>
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<td>Morning</td>
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<td>Mid day</td>
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<td>Lunch</td>
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<td>Evening tea</td>
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<td>Dinner</td>
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<td></td>
<td>Bed time</td>
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</tr>
</tbody>
</table>

General dietary pattern after the onset of heart disease
V. HEALTH INFORMATION

Do you have any history of cardio vascular problem:

When did you observe heart problem?:

What type?

Have you had any of the following symptoms:

- chest pain
- Palpitations
- Breathlessness

Ever had an ECG?: Yes/ No

If yes, for what reason

What finding?

What is your present blood pressure level?:

What is your present blood sugar level?:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Meal</th>
<th>Item</th>
<th>Ingredients</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Early morning</td>
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<tr>
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<td>Mid day</td>
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<td>Dinner</td>
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<tr>
<td></td>
<td>Bed time</td>
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</tr>
</tbody>
</table>
Present total blood cholesterol level : 
Present lipid profile value : 
  HDL
  LDL
  VLDL
  Triglyceride
From whom you take medical consultation ? : Private/ Ayurvedic/ Civil Hospital
What steps do you follow when you find symptoms of heart attack : 
Do you visit physician periodically : Yes/ No
How frequently : weekly/ fortnightly /
  monthly/quarterly
Do you know the risk factor of heart disease : Hereditary / Age / Sex/ Stress /
  Smoking /Low activity / All / None
Do you have any knowledge about control of disease through diet? : Yes/ No
What type of drug you take, mention
Do you suffer from any other disease like : Diabetes / Blood Pressure /
  Anemia / Weakness
What could be the possible reason of cardiac: Obesity / Heredity / Age /
disease do you consider Diabetes/ Excessive intake of refined food / Excessive intake of oil and fat /sedentary habits
Do you prefer any special food for heart disease : Yes/ No

Do you dine outside : Yes/ No

If yes, how frequently

Which type of food you prefer outside

Do you have knowledge about fibrous food : Yes/ No

If yes, explain

Do you take excessive of ghee / oil : Yes/ No

Do you have any idea about the intake of : Yes/ No

mixture of oil

Do you know about fibrous diet : Yes/ No

If yes, explain

Do you have idea about PUFA, MUFA and SUFA?: Yes/ No

Do you know the right ratio of PUFA:MUFA:SUFA?

Do you use any soybean oil for cooking purpose : Yes/ No

If yes, then how frequently

Which one of the following items would you prefer : Fruits / Cakes / Pastries /

to eat between meals Deep fried items

The amount of ghee that you use on table : No ghee at all / ½ tsp of ghee

every meal
On a hot summer day, you would like to have a serving of Carbonated beverages / Soft drinks / Fruit drinks

Do you have any stress- Yes/ No

If any then type- Family stress/ Professional stress/ both

Personal stress level criteria:

Do you feel miserable- Yes/ No

Do you worry too long Yes/ No

Are you suffering from sleeplessness Yes/ No

Do you get irritated Yes/ No

Do you get impulsive Yes/ No

Do you feel uneasy Yes/ No

VI. ANTHROPOMETERY

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Height (cm)</th>
<th>Bicep (mm)</th>
<th>Tricep (mm)</th>
<th>Subscapular (mm)</th>
<th>Suprailliac (mm)</th>
<th>Waist circumference</th>
<th>Hip circumference</th>
<th>BMI</th>
<th>Waist hip ratio</th>
</tr>
</thead>
</table>

Are you obese :Yes /No

If yes, then what type of obesity : Upper body obesity / lower body obesity

VII. PHYSICAL ACTIVITY
Type of daily activations: Moderate / Sedentary / Heavy

How many hours you take sleep: 

What is your mode of transport: Car / Bus / Scooter / By foot

Do you take exercise daily: Yes / No

If yes, then type of exercise

Do you know about special exercises for Cardiac patients: Yes / No

If yes, then mention

VIII. PERSONAL HABITS

Do you smoke: Yes / No

If yes, then what type of smoking material, you prefer: cigarette / bide / cigar / hokka

How frequently you smoke daily: 1-5 cigarette / day

5-10 cigarette / day

<10 cigarette / day

Do you chewed pan or gutka: Yes / No

If yes, then mention the quantity

Do you take hard drinks: Yes / No

If yes, what type: Beer / Whisky / Brandy / Rum / Any other

How frequently: Daily / Weekly / Fortnightly / Monthly / Occasionally / Any other
How much you drink at a time: 1-2 peg/day or >2 peg/day

Have you left drinking now: Yes/No

IX FAMILY HISTORY

Do you have any family history related to cardiac disease: Yes/No

Do you have any family history related to other diseases like Hypertension/Diabetes: Yes/No

if yes, then relatives suffering from Hypertension: Yes/No

cardiac disease and diabetes
APPENDIX II

INTERVIEW SCHEDULE FOR ASSESSMENT OF NUTRITIONAL KNOWLEDGE OF CARDIAC PATIENTS

I. Knowledge testing questionnaire regarding general concepts about Heart disease

1. Cardiac disease occur due to:
   a) When there is a increase in cholesterol level
   b) When there is a decrease in cholesterol level
   c) It is due to hereditary
   d) Don't know

2. It occur due to the malfunctioning of

   a) Heart
   b) Lungs
   c) Kidney
   d) Brain

3. Which one of the following may not be the symptom of heart disease?

   a) Chest pain
   b) Easy fatigue
   c) Jaundice
   d) Don't know

4. Chance of coronary heart disease increase with age

   a) Yes
   b) No
   c) Don't know

5. A thin body person has more chance of heart disease than fatty one

   a) Yes
   b) No
   c) Don't know
6. Smoker has a higher rate of cholesterol and blood pressure

   a) Yes
   b) No
   c) Don’t know

7. Is moderate alcohol beneficial for heart patients?

   a) Yes
   b) No
   c) Don’t know

8. What are the tests to check cardiac disease?

   a) ECG
   b) Ultrasound
   c) x-ray
   d) stool test

9. What is the normal range of total cholesterol?

   a) <200
   b) 200-239
   c) >240
   d) Don’t know

10. Better way to control cardiac disease by

    a) Reducing weight
    b) Gaining weight
    c) Maintaining normal weight

11. Is anemic patients prone to cardiac disease?

    a) Yes
    b) No
    c) Don’t know
12. Diabetes is risk factor for cardiac disease
   a) Yes, because it increase insulin secretion which cause the deposition of fat in arterial wall and inhibit the action of lipase and thus the decrease the fat removal from arteries
   b) Don’t know

13. Whether a cardiac patient should go for
   a) Complete rest
   b) Mild exercise
   c) Exercise like yoga and walking
   d) No idea

14. In what way exercise reduce the risk of cardiac disease
   a) It open ups the blood vessel
   b) It improving blood clotting factor
   c) Reduce body fat by increases tone of muscle tissue
   d) All above
   e) None

15. In which way cigarette smoking effect the heart functioning
   a) Makes heart work harder by narrowing of blood vessel
   b) Contain carbon monoxide which replace oxygen in the blood
   c) Both
   d) none

II. Knowledge testing questionnaire regarding general concepts about Heart disease and Nutrition
1) Vitamin C help to improve blood flow and prevent heart attack
   a) Yes
   b) No
2. Fruits and Vegetables, rich in β-carotene prevent the chances of CHD
   a) Yes
   b) No
   c) Don’t know

3. Do you know that fish consumption is good for healthy heart?
   a) Yes
   b) No
   c) Don’t know

4. Omega-3-fatty acid are known to be a dietary therapeutic substance for cardiac patients?
   a) Yes
   b) No
   c) Don’t know

5. The caffeine in coffee raise the concentration of blood lipid due to
   a) Increase in LDL
   b) Increase in HDL
   c) Decrease in LDL
   d) Decrease in HDL

6. Which one of the following is known as good fat?
   a) LDL
   b) HDL
   c) VLDL
   d) Don’t know

7. Fish is known as therapeutic food for cardiac patient because it is rich in
   a) Omega-3 –fatty acids
   b) Omega-6-fatty acid
   c) Both
   d) Don’t know
8. Maximum amount of n-3 fatty acid present in
   a) Mustard oil
   b) Coconut oil
   c) Sunflower oil
   d) Corn oil

9. Maximum amount of n-6 fatty acid are present in
   a) Sunflower oil
   b) Soybean oil
   c) Mustard oil
   d) Palm oil

10. Is raw garlic in mitigating risk of CVD?
    a) Yes
    b) No
    c) Don't know

11. Is skim milk better than whole milk for cardiac patients?
    a) Yes
    b) No
    c) Don't know

12. Soybean has a remedy role against heart disease because
    a) It lowers the serum cholesterol
    b) It increases the serum cholesterol
    c) None

13. Intake of what food is restricted for the control of heart disease
    a) Fat and oil
    b) Vegetables and fruits
    c) Sugars

14. What are the main antioxidants nutrient?
15. What type of fat prefer by the cardiac patients

- a) Saturated fat like butter and ghee
- b) Unsaturated fat from olive oil, soybean oil, sunflower oil etc.
- c) Don’t know

16. Is timing of meal important for cardiac patients?

- a) Yes
- b) No
- c) Don’t know

17. Supplementation with *Bengal gram dal* is helpful for cardiac patients as it decreases serum cholesterol level

- a) Yes
- b) No
- c) Don’t know

18. Walnut plays an important role in the diet of cardiac patients

- a) Yes
- b) No
- c) Don’t know

19. Which of the following are essential fatty acids

- a) Linolenic acid
- b) Linoleic acid
- c) Arachadonic acid
- d) Don’t know

20. Linseeds are rich in which fatty acid

- a) Linolenic acid
- b) Arachadonic acid
c) Palmitic acid
d) Don’t know
21. Olive oil is rich in which fat
   a) MUFA
   b) SUFA
   c) PUFA
   d) Don’t know
22. EPA and DHA are present in fish and helpful by
   a) Interfering in normal metabolism of platelets
   b) Reduce hypertriglyceridemia
   c) Both
23. Which fatty acids are useful for cardiac patients?
   a) Cis-fats
   b) Trans-fats
   c) Don’t know
24. Do you know the source of cholesterol which
   a) Exogenous
   b) Endogenous
   c) Both
   d) none
25 Guar gum should be used by cardiac patients because
   a) It lower the cholesterol level
   b) It increases the cholesterol level
   c) It is easy digested
   d) Don’t know
26. Capsicum should be taken by cardiac patients because
   a) it cause fibrinolysis
   b) it add flavour
   c) don't know
27. In which way sodium effect the functioning of heart
26. a) It put extra strain on the heart  
   b) Can make medication less effective  
   c) Increases the blood pressure  
   d) All  

28. Do you know the source of oxidant free radicals?  
   a) Tobacco  
   b) Smoke  
   c) Pesticides  
   d) Pollutants  
   e) All  
   f) Don't know  

29. In which ways antioxidant work?  
   a) Help neutralize free radicals  
   b) Lower LDL  
   c) Both  
   d) None  

30. What are the main antioxidant nutrients?  
   a) Vitamin C  
   b) Vitamin E  
   c) Vitamin A  
   d) No idea  

32. Do you know the sources of saturated fatty acid?  
   a) Yes  
   b) No  
   c) Don't know  

33. Do you know that lemon juice and honey together in the morning act as remedy for heart patients?  
   a) Yes  
   b) No
d)  Don’t know

34. Lemon should be used by heart patient because

   a)  It act as an antioxidant, prevent the formation of free radicals
   b)  It prevent capillary fragility
   c)  Both
   d)  Don’t know

35. Water melon seeds guard against high blood pressure because

   a)  It is said to have a definite action in deleting the blood vessel which result in lowering the blood pressure
   b)  By decreases the heart rate
   c)  Don’t know
APPENDIX- III

Treatments

T₁ - Control juice
T₂ - Water blanched
T₃ - KMS treated
T₄ - Citric acid treated
A₁ - Sugar based Beverage
A₂ - Stevioside based Beverage
P₁ - RTS
P₂ - Squash
P₃ - Syrup
S₀ - Sugar
S₁ - Syrup

Interactions

P₁ S₀ - Sugar based RTS
P₁ S₁ - Sorbitol based RTS
P₂ S₀ - Sugar based Squash
Recipes

1. *Aloe-vera RTS*

   **Ingredients**
   
   *Aloe-vera* juice : 100.0 ml  
   Water : 780.0 ml  
   Sugar : 120.0 g  
   Citric acid : 2.0g

   **Method**

   Sugar syrup was prepared by boiling sugar and water. Citric acid was added to remove the scum. Allowed it to cool and then added *aloe-vera* juice and mixed the contents properly. Remove the small portion of RTS to which 0.2 per cent citric acid was added, mixed and then add to entire lot and mixed thoroughly. Pasteurized at 90°C for 30 minutes and allowed to cool and stored in dry place.

2. *Aloe vera Squash*

   **Ingredients**
   
   Juice : 250.0 ml  
   Water : 270.0 ml  
   Sugar : 470.0 g
Citric acid : 2.0 g

Method

Sugar syrup was prepared by boiling sugar and water. Citric acid was added to remove the scum. Allowed it to cool and then added measured amount of *aloe-vera* juice and mixed the contents properly. Removed a small portion of squash to which 0.2 per cent KMS was added, mixed and then added to entire lot. Filled into sterilized bottles by leaving 2.5-3.0 cm head space at the top. Crown corked the bottles and allowed to cool and stored in dry place.

3. *Aloe-vera* Syrup

**Ingredients**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Aloe vera</em> juice</td>
<td>250.0 ml</td>
</tr>
<tr>
<td>Water</td>
<td>150.0 ml</td>
</tr>
<tr>
<td>Sugar</td>
<td>600.0 g</td>
</tr>
<tr>
<td>Citric acid</td>
<td>13.0 g</td>
</tr>
</tbody>
</table>

Method

Sugar syrup was prepared by boiling sugar and water. Citric acid was added to remove the scum. Allowed it to cool and then added measured amount of *aloe-vera* juice and mixed the contents properly. Removed a small portion of syrup to which 0.2 per cent KMS was added, mixed and then added to entire lot. Filled into sterilized bottles by leaving 2.5-3.0 cm head space at the top. Crown corked the bottles and allowed to cool and stored in dry place.

4. Dietetic *Aloe-vera* based products

i. RTS

**Ingredients**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Aloe-vera</em> juice</td>
<td>100.0 ml</td>
</tr>
<tr>
<td>Water</td>
<td>750.0 ml</td>
</tr>
<tr>
<td>Sorbitol</td>
<td>150.0 g</td>
</tr>
<tr>
<td>Citric acid</td>
<td>2 g</td>
</tr>
</tbody>
</table>

Method

Syrup was prepared by boiling sorbitol and water. Citric acid was added to remove the scum. Allowed it to cool and then added *aloe-vera* juice and mixed the
contents properly. Remove the small portion of RTS to which 0.2 per cent citric acid was added, mixed and then add to entire lot and mixed thoroughly. Pasteurized at 90°C for 30 minutes and allowed to cool and stored in dry place.

**Squash**

**Ingredients**

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<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Juice</td>
<td>205.0 ml</td>
</tr>
<tr>
<td>Water</td>
<td>170.0 ml</td>
</tr>
<tr>
<td>Sorbitol</td>
<td>580.0 g</td>
</tr>
<tr>
<td>Citric acid</td>
<td>02.0 g</td>
</tr>
</tbody>
</table>

**Method**

Syrup was prepared by boiling sorbitol and water. Citric acid was added to remove the scum. Allowed it to cool and then added measured amount of *aloe-vera* juice and mixed the contents properly. Removed a small portion of squash to which 0.2 per cent KMS was added, mixed and then added to entire lot. Filled into sterilized bottles by leaving 2.5-3.0 cm head space at the top. Crown corked the bottles and allowed to cool and stored in dry place.

**ii. Syrup**

**Ingredients**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aloe vera juice</td>
<td>25.0 ml</td>
</tr>
<tr>
<td>Water</td>
<td>7.0 ml</td>
</tr>
<tr>
<td>Sugar</td>
<td>68.0 g</td>
</tr>
<tr>
<td>Citric acid</td>
<td>1.30 g</td>
</tr>
</tbody>
</table>

**Method**

Syrup was prepared by boiling sorbitol and water. Citric acid was added to remove the scum. Allowed it to cool and then added measured amount of *aloe-vera* juice and mixed the contents properly. Removed a small portion of syrup to which 0.2 per cent KMS was added, mixed and then added to entire lot. Filled into sterilized bottles by leaving 2.5-3.0 cm head space at the top. Crown corked the bottles and allowed to cool and stored in dry place.

**5. Low caloric Beverages**
i. *Aloe-vera* beverage  
**Ingredients**  
Juice : 1000 ml  
Stevioside : 50 mg  
KMS : 2.0 g  

**Method**  
Added the measured amount of stevioside in *aloe-vera* juice and mixed properly by boiling them together. Allowed it to cool and then removed a small portion of beverage to which 0.2 per cent KMS was added, mixed and then added to entire lot. Crown corked and allowed to cool and stored in dry place.

ii. *Mint* beverage  
**Ingredients:**  
Mint extract; 5.0g  
*Dalchini* powder; 2.5g  
Stevia extract; 5ml  
Water; 250ml  

**Method:**  
Boil water to which added all the ingredients and again boil, simmer for next five minutes to extract the flavour of the content, allowed to cool and filtered the contents.

iii. *Geloy* beverage  
**Ingredients:**  
*Geloy*:1g  
Stevioside:10mg  
Water:200ml  

**Method:**  
Boil water to which added *geloy* and again boil it for next 5 minutes to extract the flavor of the content. Allow to cool and filtered and finally added stevioside.

iv. *Arjuna bark* beverage  
**Ingredients:**  
*Arjun bark*: 1g  
*Dalchini*: 2g
Stevia extract: 10ml       Water: 200ml

Method:

Boil water to which added all the ingredients and again boil, simmer for next five minutes to extract the flavor of the content allowed to cool and filtered the contents.

v. Papaya Health drink

Ingredients:

Papaya: 25g       Milk: 100ml
Stevioside: 5mg

Method:

Grinded all the ingredients in blender.

6. Soups

i. Geloy soup

Ingredients:

Geloy: 1.0 g       Chopped mixed vegetables: 50 g
Water: 200ml       Garlic: 1-2 cloves
Salt: Acc to taste   Ginger: 2.0 g
Lemon juice: few drops

Method:

Boil water to which added all the ingredients except lemon juice, simmered for few minutes so that flavor of the contents was extracted then sieved the extract and finely added few drops of lemon juice and served hot.

ii. Arjuna bark soup

Ingredients:

Arjun chat: 2.0 g       Chopped mixed vegetables: 50g
Garlic: 2 cloves       Ginger: 2g
Salt: acc to taste                              Turmeric powder: 1g
Water: 200ml

**Method:**

Boil water to which added all the ingredients, simmered for next five minutes so that flavor of the contents was extracted then sieved the extract.

7. Porridges
   i. Oats porridge
      **Ingredients:**
      Crushed oat grains: 20g                              Skimmed milk: 100ml
      Stevioside : 5mg

      **Method:**
      
      Added oats into the boiled milk and cook on a slow flame until grains get soft, and finally added stevioside, mixed properly.

   ii. Linseed porridge
      **Ingredients:**
      *Dalia*:20g                                      Linseed(puffed):5g
      Milk 150ml                                     Stevioside:5mg
      Oil :5ml

      **Method:**
      
      Added *dalia* and puffed linseed into boiling milk, simmered it for next 10 minutes until ingredients become soft. Added stevioside and mixed properly.

   iii. Dalchini porridge
      **Ingredients:**
      Suji:20g                                       *Dalchini* powder:5g
      Milk:150ml                                    Stevia extract:10ml

      **Method:**
Added suji, dalchini powder into boiling milk, cooked it on low flame for next ten minutes until it became soft. Finally added stevia extract and mixed properly.

8. Breakfast items

i. Upma

Ingredients:

*Suji:* 50 g  
*Onion:* 10 g  
*Linseed:* 30 g  
*Green chillies:* 10 g  
*Soaked Bengal gram dhal:* 15 gm  
*Mustard seed:* 10g  
*Oil:* 10 ml  
*Salt:* Acc to taste

Method:

Heated oil in the pan then added mustard seeds. Added onion and other raw ingredients into it. Cooked it for some times then added roasted suji, linseed and mixed properly. Finally added small amount of water to it and again cooked it for some time.

ii. Besan poora

Ingredients:

*Besan:* 30g  
*Linseed powder:* 5g  
*Arjun chal:* 2g  
*Chopped onion:* 5g  
*Chopped green chillies:* 2g  
*Water to make a batter:*  
*Salt:* Acc to taste

Method:

Added all the ingredients in small amount of water to prepare a thick batter. Greeced the tawa and then put a loopful of batter on hot tawa and spreaded it with the help of spoon. Then cooked it for sometime and then turned to other side, cooked until it get brown and crispy from both the sides.

iii. Pancakes

a. Suji and Oat pancake

Ingredients:

*Suji:* 30g  
*Oat flour:* 10g  
*Salt:* Acc to taste  
*Eno packet:* 1
Curd/ water: 30g

**Method:**

Added suji and oats to measured amount of curd and then mixed properly to make a thick batter. Finally added eno into the batter and again mixed well. Spreaded this batter on greeced microwave idli stand and then cooked for 3 minutes in microwave.

**b. Suji and Linseed pancake**

**Ingredients:**
- Suji; 30g
- Linseed flour; 10g
- Onion; 10g
- Water; 20 ml
- Salt : acc to taste
- Oil for sallow fry

**Method:**

Added suji, linseed flour, onion into a small amount of water to make a thick batter, then added salt and mixed well. Shallow fry the loopful of this batter on greeced tawa and cooked until crispy from both the sides.

**c. Arjun bark poora**

**Ingredients:**
- Refined flour; 30g
- Mashed banana; 10g
- Arjun chat; 5g
- Milk; 20ml
- Stevioside 0.01g
- Oil for shallow fry

**Method:**

Added all the ingredients in the measured amount of milk to make a thick a batter. Mixed it properly and then shallow fry on greeced tawa and cooked until crispy from both the sides.

9. **Main meals**

i. **Oat Chappati**

**Ingredients:**
Wheat flour; 25g  
Oat flour; 10g  
Water for kneading purpose  

**Method:**  
Kneaded the flour with water to a soft dough. Made small balls of dough and then rolled out into a chapattis and cooked on hot *tawa* from both sides.

**ii. Cutlets**  
**Ingredients:**  
*Dalia* (soaked); 40g  
*Linseed* (puffed); 10g  
*Arjun chhal*; 5g  
*Mashed potatoes*; 50g  
*Chopped onion*; 5g  
*Salt acc to taste*  

**Method:**  
Mixed all the ingredients together to make a smooth paste. Rolled out into small balls and flatten them with hand and then shallow fry on hot *tawa*. Cooked them, until get brown from both the sides.

**iii. Vegetables**  
**a. Aloe-vera and soybean vegetable**  
**Ingredients:**  
*Steamed soybean*; 30g  
*Mashed aloe-vera* gel; 3g  
*Mashed tomato*; 10g  
*Mashed onion*; 10g  
*Salt acc to taste*  
*Oil*; 5g  
*Coriander powder*; 2g  
*Cumin seeds*; 2g  

**Method:**  
Heated oil in pan then add mashed onion and cooked, until became brown. Then added mashed tomatoes and *aloe-vera* gel, again cooked for sometime. Added all other
ingredients, steamed *soybean* and little bit of water. Cooked for next five minutes. Served hot with main meal.

**b. Aloe vera vegetable**

**Ingredients:**

- *Aleo vera* gel; 50g
- Mashed tomatoes; 10g
- Mashed onion; 10g
- Curd; 10g
- Salt acc to taste
- Oil; 5g
- Coriander powder 2g
- Cumin seeds 2 g

**Method:**

Cooked onion and tomato in measured amount of oil to make a thick gravy. Added all other spices into the gravy. Finally added aloe-vera pieces and then cooked for next five minutes. Allowed it to cool and finally added curd, mixed well and served with *roti*.

**c. Aloe-vera and Methi vegetable**

**Ingredients:**

- *Aloe-vera* gel pieces ;10g
- Steamed *methi* leaves; 100g
- Chopped onion; 10g
- Salt acc to taste
- Oil; 15g
- Cumin seeds; 2 g
- Coriander powder; 2g

**Method:**

Heated oil in pan and then added chopped onion, other spices and roast well. Added boiled *meethi* leaves and *aloe-vera* into the gravy. Cooked for next five minutes. Served hot with main meal.

**d. Cabbage and Linseed vegetable**
**Ingredients:**

- Cabbage; 100g
- Roasted linseed; 10g
- Onion; 10g
- Oil; 15g
- Salt acc to taste
- Cumin seeds ;2 g
- Coriander powder 2g

**Method:**

Heated oil in pan, added onion and other spices and cooked for sometime. Then added cabbage and cooked, until it became soft and finally added puffed linseeds into cooked vegetable.

---

**Appendix-IV**

**Organoleptic Evaluation form**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Perfect</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Off</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: Make check mark in columns corresponding to your rating of sample, when scorning one factor. However, when scorning 2 or more factors, write in the following letter in the corresponding column of columns (C) colour (F) Flavour (T) Texture (S) Consistency.
### Appendix-V

**Analysis of variance by completely randomized design (CRD)**

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Replications</th>
<th>Sum</th>
<th>Mean</th>
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<tr>
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<td>B</td>
<td>C</td>
<td>D</td>
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</tr>
<tr>
<td>Sum</td>
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<td></td>
<td>Grand Total</td>
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</tbody>
</table>

**Analysis of data**

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Degree of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F. calculated</th>
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<tbody>
<tr>
<td>Treatment</td>
<td>(t-1)</td>
<td>C</td>
<td>C/(t-1) = X</td>
<td>X/Y</td>
</tr>
<tr>
<td>Error</td>
<td>(t-1) (r-1)</td>
<td>D</td>
<td>D/(t-1)(r-1)</td>
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</tbody>
</table>

A. (Grand sum) 2/total number of observations = C

B. (squares all observations and add) – C

C. (sum of observations in one treatment squared and add to same for all treatments/No. of replications) – C

D. B – C

Least significance difference (LSD) =

\[
\sqrt{\frac{2}{\text{No. of replications}}} \times \text{Mean square error} \times 't' \text{ value at error df.}
\]
## Appendix VI

Temperature corrections for Standard Model of Sugar Refractometer calibrated for 20°C

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<tr>
<td>30</td>
</tr>
</tbody>
</table>
a) Weight (kg) wise distribution

b) Height (cm) wise distribution

Fig. 4.4 Distribution of patients according to their Weight (kg) and Height (cm) measurements
Fig. 4.2  Average Food Intake by the patients Before and After the Onset of disease
Fig. 4.3  Average Nutrients Intake by the Patients Before and After the Onset of disease

a). Gender wise distribution
b). Age wise distribution

Fig 4.1 Gender and Age wise distribution of the selected patients

Fig 4.5. Organoleptic Evaluation of *Bottle gourd* juice
Fig 4.6 Organoleptic Evaluation of *Aloe-vera* juice

![Bar chart](image)

**Fig. 4.7** Organoleptic evaluation of Sugar and Dietetic based *Aloe-vera* RTS, Squash and Syrup

![Bar chart](image)
Fig. 4.8. Organoleptic Evaluation of Stevioside and Sugar Aloe-vera based beverage
Diet charts

Plate 4.1 Development of Intervention Package

a). *Aloe-vera* RTS, Squash and Syrup
b). *Aloe-vera* Beverages

Plate 4.4  Dietetic and Sugar based Aloe-vera products
a) *Bottle gourd* juice
b) *Aloe-vera* juice

Plate 4.3 Preparation of Juices

[Image of Aloe vera leaf]
Plate 3.1: Steps in processing of Aloe-vera
a) Bottle gourd
b) *Aloe-vera*

Plate 4.2 Raw Ingredients