

Sree Narayana College

Chengannur

Affiliated to University of Kerala
NAAC accredited with Grade B

CERTIFICATE COURSE ON FOOD CHEMISTRY



Course coordinator: Mrs. Neetu Pradeep
Assistant Professor
Department of Chemistry
SN College Chengannur

Contact Number: 8281797929

ORGANISING COMMITTEE

SRI. VELLAPPALLY NADESAN

(PATRON)

MS. SHEREEN K. (PRINCIPAL IN

CHARGE)

DR. SMITHA SASIDHARAN

(IQAC COORDINATOR)

MS. NEETU PRADEEP

(COORDINATOR, CERTIFICATE

COURSE)

DR. VENU S.

(HEAD, DEPARTMENT OF

CHEMISTRY)

DR. JISHA SREEDHARAN

DR. ANJU K.S.

DR. RESHMI R.

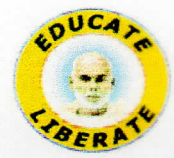
Sree Narayana College, Chengannur, named after the great social reformer Sree Narayana Guru, is a major centre for higher education to the rural community in the vicinity. The college was established in 1981. The vision of our College is to provide 'Liberation through Education' and 'Enlightenment through Education'. The college offer five undergraduate and three post graduate courses.

The Post Graduate Department of Chemistry ever since its establishment remains one of the major departments of the college, which offers high quality teaching. The department is equipped with a wide range of facilities to aid the students to do well in their performance. We cordially invite the interested undergraduate and post graduate students to join the Certificate course on 'Food Chemistry' implemented by the Post Graduate Department of Chemistry in association with IQAC, S N College Chengannur.

The certificate course "Food Chemistry " focuses on a general introduction to food science and nutrition, and particularly gives importance to the chemistry aspects of different kinds of foods. Food chemistry is an interdisciplinary subject which encompasses some of the basic and advance science subjects like chemistry, biochemistry, botany, microbiology, nutritional science, biotechnology and molecular biology. The course mainly deals with chemical composition of foods, basic biomolecules, chemical structure and the properties of food constituents. It also covers the chemical changes of food during processing and storage.

COURSE DETAILS:

- **THE COURSE IS OPENED TO ALL POST GRADUATE AND UNDERGRADUATE STUDENTS**
- **COURSE DURATION: 33 HOURS [THEORY (27 HOURS), PRACTICAL (6 HOURS)]**
- **COURSE FEES: RS. 250/-**
- **ASSESSMENT: ASSIGNMENT AND MCQ**



Sree Narayana College Chengannur

Affiliated to the University of Kerala

NAAC Accredited with B Grade

Minutes of the Meeting of Board of Studies

Attendees:-

1. Smt. Shereen K (Principal)
2. Dr. K Sreelatha (Chairman, Board of studies)
3. Dr. Smitha Sasidharan (IQAC Coordinator)
4. Dr. Venu S (Head, Department of Chemistry)
5. Smt. Neetu Pradeep (Course Coordinator)
6. Dr. Ambily Chandran (External Member)

Venue: Principal's Chamber

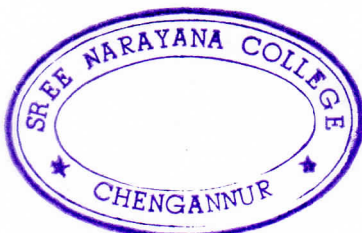
Date & Time: 06/09/2021 at 11 am


Agenda:

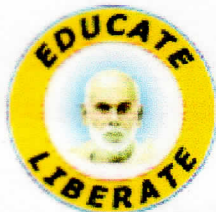
1. Review of Certificate course proposal

Minutes:

1. Reviewed the certificate course proposal submitted by Department of Chemistry.
2. Approved the syllabus and proposal of the certificate course on "Food Chemistry".




PRINCIPAL
SREE NARAYANA COLLEGE
CHENGANNUR



POST GRADUATE DEPARTMENT OF CHEMISTRY

CERTIFICATE COURSE: FOOD CHEMISTRY(CH21FC)

Relevance of Food chemistry

- Food chemistry is the study of chemical processes and interactions between all biological and non-biological components of foods
- It informs us the changes in foods taking place during processing and storage. The chemical processes that take place inside food determine its nutritional value, taste, texture and freshness.
- The importance of food chemistry lies in its ability to counter the effects of decomposition and spoilage and extend the shelf life of foods. Various household chemicals help in preservation of foods like use of common salt in pickles, chutney, sauces etc. These increase the osmotic pressure of food and decrease the water activity, which further prevents the growth of microorganisms in Food. Common methods of food preservation include salting, cooking, drying, refrigeration, canning, irradiation, dehydration, wood smoke, use of spices, pickling, fermentation etc.

Objectives

The students will be trained to understand and discuss the main principles, theories and concepts underlying established knowledge in food chemistry. On completing this course, students should be able to:

- describe reactions and mechanisms important in food chemistry
- explain the chemistry of the most important food components, including their properties and reactions
- develop and distinguish how individual food components contributes to the overall quality of foods
- explain the major chemical reactions that occur during food handling, processing and storage, including those that limit food shelf life

FOOD CHEMISTRY

The certificate course "Food Chemistry" focuses on providing a general introduction to food science and nutrition and particularly giving importance to the chemistry aspects of different kinds of foods. Food Chemistry is an interdisciplinary subject which encompasses some of the basic and advance science subjects like chemistry, biochemistry, botany, microbiology, nutritional science, biotechnology and molecular biology. The course mainly deals with chemical composition of foods, basic biomolecules, chemical structure and properties of food constituents. It also covers chemical changes food undergoes during processing and storage, techniques to identify and manage food spoilage. The course is divided into different modules that gives the learner the basic information about chemical composition of main types of foods, bio molecules such as carbohydrates, proteins and enzymes, lipids, vitamins, pigments, flavours, minerals and other micro components and additives. It also includes practical sessions which deals with the analysis of various contents in fruit juices, Vitamin C in citrus fruits, oxalate content in guava, Ph analysis of fruits and chocolate analysis.

Expected Outcomes:

- deep understanding of how food components contribute to overall quality of food
- explain the nutritional importance of carbohydrates, changes occurring during processing and its storage
- Importance of proteins and fats, effect of its deficiencies
- Detailed discussion of vitamins and minerals, its deficiency diseases
- Discuss the various enzymatic actions in food
- Importance of pigments and additives used in food
- Discuss about some of the fascinating facts of chemistry in our daily life

❖ Module-I

3 hrs

Introduction to Food Chemistry-definition and concepts -food, nutrition, nutrients-**malnutrition**, Importance of food chemistry, **Water in food**- as a nutrient, interaction with food components and food stability

❖ Module -II

9 hrs

Macronutrients-carbohydrates- definition- classification, sources and properties- nutritional and industrial importance- functions of sugar in food (Browning reaction), changes during cooking and processing- **Artificial sweeteners**

Proteins-definition, classification, sources and properties- nutritional importance, denaturation, and protein deficiency, Protein structure
Protein changes during processing -**Fats**- definition, classification, sources, properties and nutritional values, deficiency diseases

❖ **Module-III** **9 hrs**

Micronutrients-Vitamins- sources, importance, fat soluble and water-soluble vitamins, its deficiencies, effect of processing and storage on vitamins- **Minerals**-importance and sources and deficiencies of minerals- **Enzymes**- definition, classifications, kinetics factors influencing enzyme activity, controlling enzyme action, enzyme added to food during processing, modification of food by endogenous enzyme. Enzyme inhibitors in food

❖ **Module-IV** **3 hrs**

Other components-

Pigments indigenous to food, structure, chemical and physical properties, Effect of processing and storage

Flavouring agents- Vegetables, fruit and spice flavours, fermented food, Meat and sea food

❖ **Module-V** **3 hrs**

Fascinating facts of Chemistry- cooking in pressure cooker, chemistry of chocolates and brewing, colour of vegetables and fruits, chemistry of slicing onions, chemistry of tastes and flavours

References:

- Food Chemistry David Newton Facts on File, Inc. New York 2004
- Principles of Food Chemistry DeMan JM AVI Publishing Co Inc., 1976
- Swaminathan, M. (2012). Advanced Text book on food and Nutrition, Vol. II.
- Swaminathan, M. (2012). Handbook of Food & Nutrition. 5th Edition.
- Shakuntala, M.N and Shadaksharaswamy, M. (2013). Food Facts and Principles. New Age International.
- Srilakshmi, B. Food science. 3rd Edition. New Age International

PRACTICALS

6 hrs

1. Analysis of contents in fruit juices- starch, carbohydrates and calcium
2. pH analysis of fruits
3. Analysis of Vitamin C content in citrus fruits
4. Analysis of oxalate content in guava fruit
5. Analysis of Chocolates



[Handwritten signature]
SREE NARAYANA COLLEGE
CHENGANNUR

SREE NARAYANA COLLEGE CHENGANNUR
DEPARTMENT OF CHEMISTRY

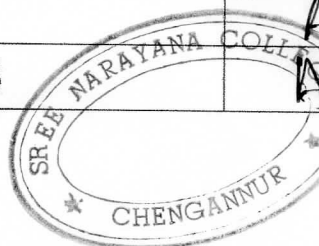
Certificate Course on "Food Chemistry"(CH21FC)

Duration: 3 months

Year: 2021-22

Student Enrolment for the certificate course

Sl.No.	Candidate code	Name of Candidate	Signature
1	63520128001	AJMI FATHIMA N	
2	63520128002	AMNA FATHIMA	
3	63520128003	AMRUTHA JAYAKUMAR	
4	63520128005	ANJANA SUNIL	
5	63520128006	ANJU VISWANATHAN	
6	63520128007	ANJUMOL PAUL	
7	63520128008	ARJUN P	
8	63520128009	ARYAMOL S	
9	63520128010	DEVIKRISHNA	
10	63520128011	GREESHMA G	
11	63520128012	RESHMI M RAJU	
12	63520128013	SANJAY KRISHNAN S	
13	63520128014	SNEHA	
14	63520128015	SREEJITH S	
15	63520128016	SREELEKSHMI R	
16	63520128017	SUKANYA SUKHADEVAN	
17	63520128018	VINAYAPRIYA A	
18	63520128019	VRINDA	
19	63521128001	AJIL S B	
20	63521128002	ANJANA T V	
21	63521128003	ANUGRAHA A S	





ATTENDANCE REGISTER FOR THE MONTH OF September 2021

No.	NAME	Designation														Working Days	Days Present	Days absent	Leave Taken	Remarks																																				
			1	2	3	4	5	6	7	8	9	10	11	12	13						14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																		
1	Ajmi Fathima N																			X		X	X												6	5			6/5																	
2	Amna Fathima																			X		X	X														6	6			6/6															
3	Amrutha Jayakumar																			X		X	X																6	6			6/6													
4	Anjana Suresh																			X		a																		6	5			6/5												
5	Anju Viswanathan																			X		X	X																			6	6			6/6										
6	Anguel Paul																			X		X	X																					6	6			6/6								
7	Asun P																			X		X	X																						6	6			6/6							
8	Anjani S																			X		X	X																							6	5			6/5						
9	Devika Shoa																			X		X	X																							6	5			6/5						
10	Geetha G																			X		X	X																								6	6			6/6					
11	Reshmi M Raju																			X		X	X																								6	6			6/6					
12	Sanjay Krishnan S																			X		X	X																									6	5			6/5				
13	Sheha																			X		a																									6	5			6/5					
14	Shreya S																			X		X	X																										6	6			6/6			
15	Shreelakshmi R																			X		X	X																										6	6			6/6			
16	Sukanya Sukhadevan																			X		X	X																										6	6			6/6			
17	Vinayapriya A																			X		X	X																										6	6			6/6			
18	Vandana																			X		X	X																										6	6			6/6			
19	Ajil S B																			X		X	X																											6	6			6/6		
20	Anjana Y V																			X		X	X																											6	6			6/6		
21	Anugraha A S																			X		X	X																											6	6			6/6		
22	Ashu A R																			X		X	X																												6	6			6/6	
23	Chippy Hansh																			X		X	X																											6	6			6/6		
24	Geetha Prasad																			X		X	X																												6	6			6/6	
25	Krishna S V																			X		X	X																												6	6			6/6	
26	Meenakshy A																			X		X	X																												6	6			6/6	
27	Meenu Ramesh																			X		a																												6	5			6/5		
28	Reshma R S																			X		X	X																												6	6			6/6	
29	Rohini S Pillai																			X		X	X																												6	6			6/6	
30	Shamla P S																			X		X	X																													6	6			6/6
31	Shadha R																			X		X	X																													6	6			6/6
32	Shreelakshmi M S																			X		X	X																													6	6			6/6
33	Shreya S																			X		X	X																													6	6			6/6
34	Vismaya V																			X		X	X																												6	6			6/6	



PRINCIPAL
SRIEE NARAYANA COLLEGE
MANNUR



Sree Narayana College Chengannur

Alappuzha, Kerala

Aided College Affiliated to the University of Kerala
NAAC accredited with Grade B

CERTIFICATE

This is to certify that
has successfully completed the certificate course on "Food Chemistry" conducted by
the Post Graduate Department of Chemistry, Sree Narayana College Chengannur
during 2021-22.

Dr. Venu S
Head, Department of Chemistry

Dr. Shereen K
Principal-in-Charge