

**QUANTITATIVE DETERMINATION OF VITAMIN C IN COMMON
EDIBLE FOOD SOURCES BY REDOX TITRATION**

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

ANGEL MARIYA BENNY

CRAUSCH015

UNDER THE SUPERVISION OF

Dr. Roshini K. Thumpakara

Assistant Professor

Department of Chemistry

Carmel College (Autonomous), Mala



**DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE (AUTONOMOUS), MALA
THRISSUR, KERALA**

2022-2023

Supervisor

Dr. Roshini K. Thumpakara
Asst. Professor



Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD



CARMEL COLLEGE, MALA

(Nationally Re-accredited with "A" grade)
Affiliated to University of Calicut
Mala-680732

CERTIFICATE

This is to certify that the report on the project entitled "**Quantitative determination of Vitamin C in common edible food sources by redox titration**" is a bonafide record of the work carried out by **ANGEL MARIYA BENNY (Reg No. CRAUSCH015)** under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.

Princy K.G.

Head of the Department

Dr. PRINCY K.G.

**ASSOCIATE PROFESSOR & HEAD
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Roshini K. Thumpakara

Faculty in charge

Dr. Roshini K. Thumpakara

Assistant Professor

Submitted for project Evaluation held on ...12/4/23

Examiners:

1)

[Signature]

2)

Dr. Princy K.G.

NUTRITIVE ANALYSIS AND IRON CONTENT ESTIMATION IN SELECTED MEDICINAL PLANTS

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

ANJALIKRISHNA K

CRAUSCH016

UNDER THE SUPERVISION OF

Dr. Vidya Francis

Assistant Professor

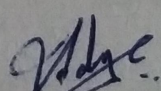
Department of Chemistry

Carmel College (Autonomous), Mala

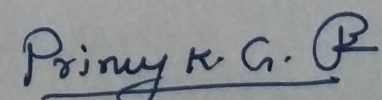


**DEPARTMENT OF CHEMISTRY
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2022-2023


Dr. VIDYA FRANCIS
Asst. Professor
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Supervisor




Head of the department

CARMEL COLLEGE (AUTONOMOUS), MALA

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Affiliated to University of Calicut



CERTIFICATE

This is to certify that the report on the project entitled "**Nutritive Analysis and Iron Content Estimation in Selected Medicinal Plants**" is a bonafide record of the work carried out by **ANJALIKRISHNA K**

(**Reg No: CRAUSCH016**) under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.

Princy K.G.

Head of the Department

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Faculty in charge

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Dr. Vidya Francis
Assistant Professor

Dr. VIDYA FRANCIS
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Submitted for project Evaluation held on

Examiners:

1)

2)

NUTRITIVE ANALYSIS AND IRON CONTENT ESTIMATION IN SELECTED MEDICINAL PLANTS

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

ARYA K S

CRAUSCH017

UNDER THE SUPERVISION OF

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Assistant Professor

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DEPARTMENT OF CHEMISTRY

CARMEL COLLEGE (AUTONOMOUS),

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CERTIFICATE

This is to certify that the report on the project entitled "**Nutritive Analysis and Iron Content Estimation in Selected Medicinal Plants**" is a bonafide record of the work carried out by **ARYA K S (Reg No: CRAUSCH017)** under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.

Princy K. G. P.
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Faculty in charge

Vidya Francis
Dr. Vidya Francis
Assistant Professor

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Submitted for project Evaluation held on College, Mala

Examiners:

1)

NUTRITIVE ANALYSIS AND IRON CONTENT ESTIMATION IN SELECTED MEDICINAL PLANTS

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

ARYA T T

CRAUSCH018

UNDER THE SUPERVISION OF

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Assistant Professor

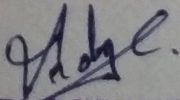
Department of Chemistry

Carmel College (Autonomous), Mala

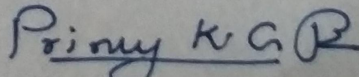


**DEPARTMENT OF CHEMISTRY
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CARMEL COLLEGE (AUTONOMOUS), MALA

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CERTIFICATE

This is to certify that the report on the project entitled “**Nutritive Analysis and Iron Content Estimation in Selected Medicinal Plants**” is a bonafide record of the work carried out by **ARYA T T (Reg No: CRAUSCH018)** under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.

Princy K.G.

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Examiners:

1)

2) *Dr. Princy K.G.*

NUTRITIVE ANALYSIS AND IRON CONTENT ESTIMATION IN SELECTED MEDICINAL PLANTS

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

DELNA JOSEPH

CRAUSCH019

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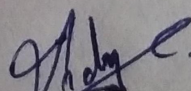


DEPARTMENT OF CHEMISTRY

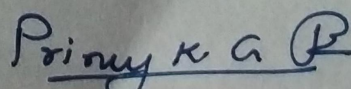
CARMEL COLLEGE (AUTONOMOUS),

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2022-2023


Dr. VIDYA FRANCIS
Asst. Professor
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CERTIFICATE

This is to certify that the report on the project entitled “**Nutritive Analysis and Iron Content Estimation in Selected Medicinal Plants**” is a bonafide record of the work carried out by **DELNA JOSEPH**

(**Reg No: CRAUSCH019**) under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.

Princy K.G.

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Carmel College, Mala**

Submitted for project Evaluation held on *12/4/23*.....

Examiners:

1)

2) *Dr. Princy K.G.*

NUTRITIVE ANALYSIS AND IRON CONTENT ESTIMATION IN SELECTED MEDICINAL PLANTS

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

DONIYA DAVIS

CRAUSCH020

UNDER THE SUPERVISION OF

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Assistant Professor

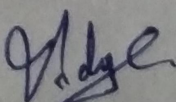
Department of Chemistry

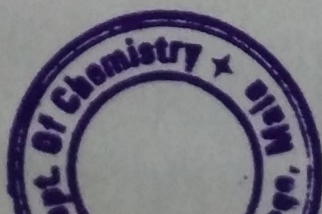
Carmel College (Autonomous), Mala

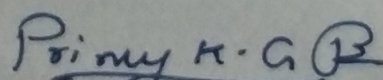


DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE (AUTONOMOUS),
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This is to certify that the report on the project entitled "**Nutritive Analysis and Iron Content Estimation in Selected Medicinal Plants**" is a bonafide record of the work carried out by **DONIYA DAVIS**

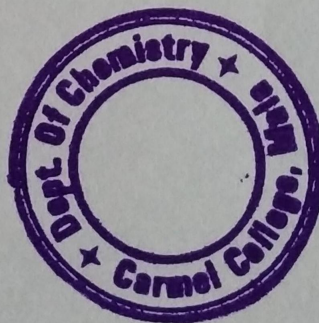
(Reg No: CRAUSCH020) under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.

Princy K.G.

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Submitted for project Evaluation held on

Examiners:

1)

2)

**ESTIMATION OF ASCORBIC ACID AND OXALATE CONTENT
IN SELECTED SPICES AND SEASONINGS OF KERALA**

Project report submitted to the University of Calicut for
partial fulfillment of the award of the degree of
B.Sc. Program in Chemistry

By

EMILY MANOJ

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UNDER THE SUPERVISION OF

Dr. PRINCY K G

Associate Professor

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DEPARTMENT OF CHEMISTRY

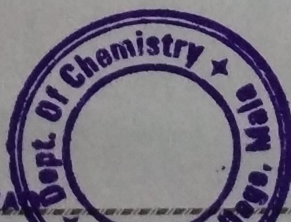
CARMEL COLLEGE(AUTONOMOUS), MALA

THRISSUR, KERALA

2022-2023

Princy K.G. B
Supervisor

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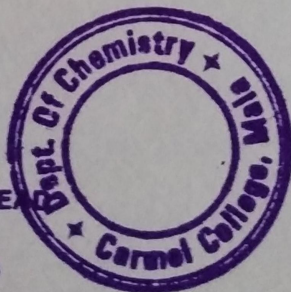
Mala-680732

CERTIFICATE

This is to certify that the report on the project entitled "**ESTIMATION OF ASCORBIC ACID AND OXALATE CONTENT IN SELECTED SPICES AND SEASONINGS OF KERALA**" is a bonafide record of the work carried out by **EMILY MANOJ** (Reg. No. CRAUSCH021) under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College(Autonomous), Mala during the academic year 2022-2023.

Princy K. G. B
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Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
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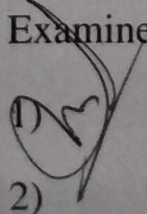


Princy K. G. B
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Associate Professor

Submitted for project evaluation held on

Examiners:

1) 
2)

**ESTIMATION OF ASCORBIC ACID AND OXALATE CONTENT
IN SELECTED SPICES AND SEASONINGS OF KERALA**

Project report submitted to the University of Calicut for
partial fulfillment of the award of the degree of
B.Sc. Program in Chemistry

By

HENET BABU

CRAUSCH022

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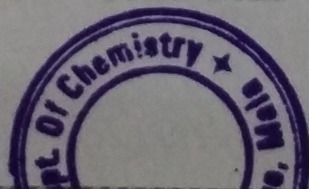
DEPARTMENT OF CHEMISTRY

CARMEL COLLEGE(AUTONOMOUS), MALA

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2022-2023

Princy K. G R
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Princy K. G R
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CARMEL COLLEGE(AUTONOMOUS), MALA

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CERTIFICATE

This is to certify that the report on the project entitled "**ESTIMATION OF ASCORBIC ACID AND OXALATE CONTENT IN SELECTED SPICES AND SEASONINGS OF KERALA**" is a bonafide record of the work carried out by **HENET BABU (Reg. No. CRAUSCH022)** under my supervision and guidance towards the partial fulfilment of the requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College(Autonomous), Mala during the academic year 2022-2023.

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Submitted for project evaluation held on

Examiners:

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**ESTIMATION OF ASCORBIC ACID AND OXALATE CONTENT
IN SELECTED SPICES AND SEASONINGS OF KERALA**

Project report submitted to the University of Calicut for
partial fulfillment of the award of the degree of
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By

KRISHNAPRIYA M

CRAUSCH023

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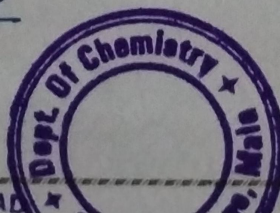
CARMEL COLLEGE(AUTONOMOUS), MALA

THRISSUR, KERALA

2022-2023

Princy K.G.
Supervisor

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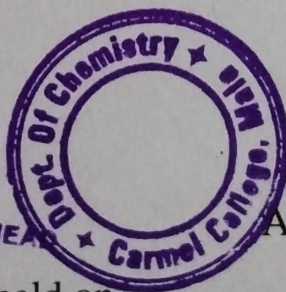
CERTIFICATE

This is to certify that the report on the project entitled "ESTIMATION OF ASCORBIC ACID AND OXALATE CONTENT IN SELECTED SPICES AND SEASONINGS OF KERALA" is a bonafide record of the work carried out by **KRISHNAPRIYA M** (Reg. No. CRAUSCH022) under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College(Autonomous), Mala during the academic year 2022-2023.

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Submitted for project evaluation held on

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1)

2)

ESTIMATION OF ASCORBIC ACID AND OXALATE CONTENT IN SELECTED SPICES AND SEASONINGS OF KERALA

Project report submitted to the University of Calicut for
partial fulfillment of the award of the degree of
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By

MANJIMA

CRAUSCH024

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Associate Professor

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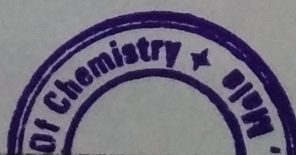
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DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE(AUTONOMOUS), MALA
THRISSUR, KERALA

2022-2023

Princy K G
Supervisor



Princy K G
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CARMEL COLLEGE(AUTONOMOUS), MALA

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CERTIFICATE

This is to certify that the report on the project entitled "ESTIMATION ASCORBIC ACID AND OXALATE CONTENT IN SELECTED SPICES AND SEASONINGS OF KERALA" is a bonafide record of the work carried out by **MANJIMA** (Reg. No. CRAUSCH024) under my supervision and guidance towards the partial fulfilment of the requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College(Autonomous), Mala during the academic year 2022-2023.

Princy K G

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Princy K. G

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Dr. PRINCY K G
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Submitted for project evaluation held on

Examiners:

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2)

**ESTIMATION OF ASCORBIC ACID AND OXALATE CONTENT
IN SELECTED SPICES AND SEASONINGS OF KERALA**

Project report submitted to the University of Calicut for
partial fulfillment of the award of the degree of
B.Sc. Program in Chemistry

By

MUNA ABDUL AZEEZ R K

CRAUSCH025

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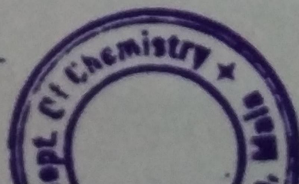
DEPARTMENT OF CHEMISTRY

CARMEL COLLEGE(AUTONOMOUS), MALA

THRISSUR, KERALA

2022-2023

Princy K. G.
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Dr. PRINCY K.G.



Princy K. G.
Head of the Department
Dr. PRINCY K.G.



CARMEL COLLEGE(AUTONOMOUS), MALA

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Affiliated to the University of Calicut

Mala-680732

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Submitted for project evaluation held on

Examiners:

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COMPARATIVE STUDY OF SUGAR CONTENT IN NATURAL AND COMMERCIAL FRUIT JUICES

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

NIKHILA SIBY

CRAUSCH026

UNDER THE SUPERVISION OF

Dr. VIDYA FRANCIS

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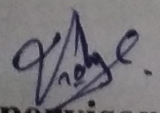
Department of Chemistry

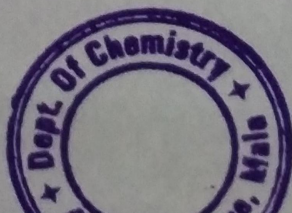
Carmel College(Autonomous), Mala

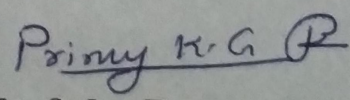


DEPARTMENT OF CHEMISTRY
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2022-2023


Supervisor
Dr. VIDYA FRANCIS
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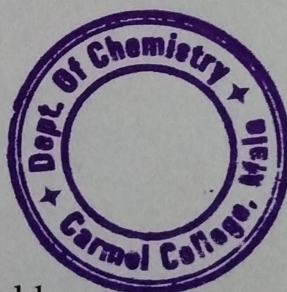
CERTIFICATE

This is to certify that the report on the project entitled "**Comparative Study of Sugar Content in Natural and Commercial Fruit Juices**" is a bonafide record of the work carried out by **NIKHILA SIBY (Reg No: CRAUSCH026)** under my supervision and guidance towards the partial fulfilment of the requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College(Autonomous), Mala in the academic year 2022-2023.

Princy K.G.P

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Faculty in charge

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Dr. Vidya Francis
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Carmel College, Mala

Submitted for project Evaluation held on

Examiners:

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Project report submitted to the University of Calicut for partial fulfilment of the
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By

POOJA P S

CRAUSCH027

UNDER THE SUPERVISION OF

Dr. VIDYA FRANCIS

Assistant Professor

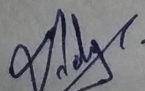
Department of Chemistry

Carmel College(Autonomous), Mala

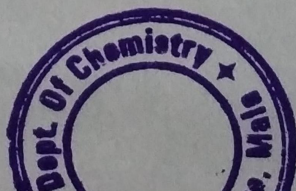


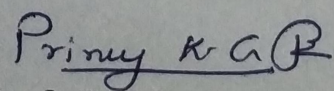
DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE(AUTONOMOUS), MALA
THRISSUR, KERALA

2022-2023


Supervisor

Dr. VIDYA FRANCIS




Head of the Department
Dr. PRINCY K.G.
ASSOCIATE PROFESSOR



CARMEL COLLEGE(AUTONOMOUS), MALA

(Nationally Re-accredited with "A" grade)
Affiliated to **University of Calicut**
Mala-680732

CERTIFICATE

This is to certify that the report on the project entitled "**Comparative Study of Sugar Content in Natural and Commercial Fruit Juices**" is a bonafide record of the work carried out by **POOJA P S (Reg No: CRAUSCH027)** under my supervision and guidance towards the partial fulfilment of the requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College(Autonomous), Mala in the academic year 2022-2023.

Princy K.G.P.
Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



Faculty in charge
Vidya Francis
Dr. Vidya Francis
Assistant Professor

Dr. VIDYA FRANCIS
Asst. Professor
Dept. of Chemistry
Carmel College, Mala

Submitted for project Evaluation held on

Examiners:

1)

2)

COMPARATIVE STUDY OF SUGAR CONTENT IN NATURAL AND COMMERCIAL FRUIT JUICES

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

SALMIYA ANSAR CHUNDEKKAD

CRAUSCH028

UNDER THE SUPERVISION OF

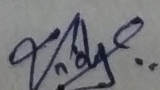
Dr. VIDYA FRANCIS

Assistant Professor
Department of Chemistry
Carmel College(Autonomous), Mala

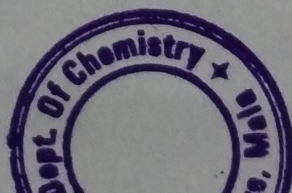


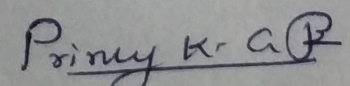
DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE(AUTONOMOUS), MALA
THRISSUR, KERALA

2022-2023


Supervisor

Dr. VIDYA FRANCIS




Head of the Department
Dr. PRINCY K.G.



CARMEL COLLEGE(AUTONOMOUS), MALA

(Nationally Re-accredited with "A" grade)
Affiliated to **University of Calicut**
Mala-680732

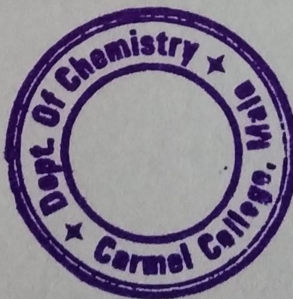
CERTIFICATE

This is to certify that the report on the project entitled "**Comparative Study of Sugar Content in Natural and Commercial Fruit Juices**" is a bonafide record of the work carried out by **SALMIYA ANSAR CHUNDEKKAD (Reg No: CRAUSCH028)** under my supervision and guidance towards the partial fulfilment of the requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College(Autonomous), Mala in the academic year 2022-2023.

Princy K.G.P.

Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



Faculty in charge

Vidya Francis
Dr. Vidya Francis
Assistant Professor

Dr. VIDYA FRANCIS
Asst. Professor
Dept. of Chemistry
Carmel College, Mala

Submitted for project Evaluation held on

Examiners:

1)

[Signature]

2)

Dr. Princy K.G.P.

**COMPARATIVE STUDY OF SUGAR CONTENT IN NATURAL AND
COMMERCIAL FRUIT JUICES**

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

VISHNUPRIYA THAMBI S

CRAUSCH029

UNDER THE SUPERVISION OF

Dr. VIDYA FRANCIS

Assistant Professor

Department of Chemistry

Carmel College(Autonomous), Mala

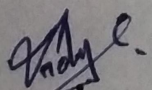


DEPARTMENT OF CHEMISTRY

CARMEL COLLEGE(AUTONOMOUS), MALA

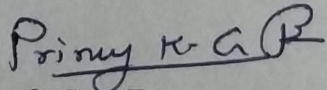
THRISSUR, KERALA

2022-2023


Supervisor

Dr. VIDYA FRANCIS
Asst. Professor




Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



CARMEL COLLEGE(AUTONOMOUS), MALA

(Nationally Re-accredited with "A" grade)

Affiliated to **University of Calicut**

Mala-680732

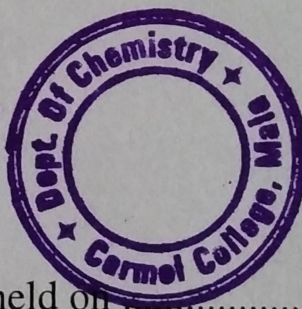
CERTIFICATE

This is to certify that the report on the project entitled "**Comparative Study of Sugar Content in Natural and Commercial Fruit Juices**" is a bonafide record of the work carried out by **VISHNUPRIYA THAMBI S (Reg No: CRAUSCH029)** under my supervision and guidance towards the partial fulfilment of the requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College(Autonomous), Mala in the academic year 2022-2023.

Princy K.G.

Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



Faculty in charge

Vidya Francis
Dr. Vidya Francis
Assistant Professor

Dr. VIDYA FRANCIS
Asst. Professor
Dept. of Chemistry
Carmel College, Mala

Submitted for project Evaluation held on

Examiners:

1)

2)

**COMPARATIVE STUDY OF SUGAR CONTENT IN NATURAL AND
COMMERCIAL FRUIT JUICES**

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

VISMAYA . P

CRAUSCH030

UNDER THE SUPERVISION OF

Dr. VIDYA FRANCIS

Assistant Professor

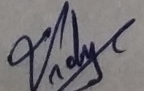
Department of Chemistry

Carmel College(Autonomous), Mala

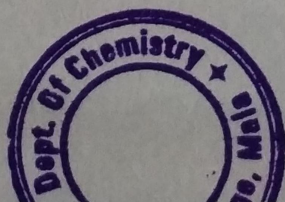


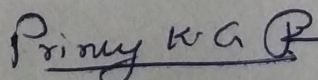
**DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE(AUTONOMOUS), MALA
THRISSUR, KERALA**

2022-2023


Supervisor

Dr. VIDYA FRANCIS




Head of the Department

Dr. PRINCY K.G.

ASSOCIATE PROFESSOR



CARMEL COLLEGE(AUTONOMOUS), MALA

(Nationally Re-accredited with "A" grade)

Affiliated to **University of Calicut**

Mala-680732

CERTIFICATE

This is to certify that the report on the project entitled "**Comparative Study of Sugar Content in Natural and Commercial Fruit Juices**" is a bonafide record of the work carried out by **VISMAYA. P (Reg No: CRAUSCH030)** under my supervision and guidance towards the partial fulfilment of the requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College(Autonomous), Mala in the academic year 2022-2023.

Princy K.G.P

Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



Faculty in charge

Vidya Francis
Dr. Vidya Francis
Assistant Professor

Dr. VIDYA FRANCIS
Asst. Professor
Dept. of Chemistry
Carmel College, Mala

Submitted for project Evaluation held on

Examiners:

1)

2)

Quantitative analysis of oxalate content and nutritive study of selected fruits and vegetables

Project report submitted to the University of Calicut for partial fulfilment of the award of the degree of
B. Sc. Program in Chemistry

By

Abinasree Anand

CRAUSCH001

UNDER THE SUPERVISION OF

Dr. Roshini K. Thumpakara

Assistant Professor

Department of Chemistry

Carmel College (Autonomous), Mala



DEPARTMENT OF CHEMISTRY

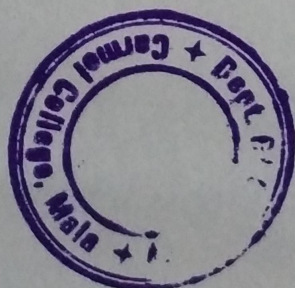
CARMEL COLLEGE (AUTONOMOUS), MALA

THRISSUR, KERALA

2022-2023

Supervisor

Dr. Roshini. K Thumpakara
Asst. Professor
Dept. of Chemistry
Carmel College, Mala



Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



CARMEL COLLEGE (AUTONOMOUS), MALA

(Nationally Re-accredited with "A" grade)

Affiliated to University of Calicut

Mala-680732

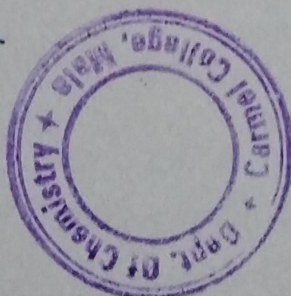
CERTIFICATE

This is to certify that the report on the project entitled "Quantitative analysis of oxalate content and nutritive study of selected fruits and vegetables" is a bonafide record of the work carried out by **Abinasree Anand (Reg No. CRAUSCH001)** under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.

Princy K. G.

Head of the Department
Dr. PRINCY K.G.

ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



Roshini K. Thumpakara

Faculty in charge

Dr. Roshini K. Thumpakara
Assistant Professor

Submitted for project Evaluation held on

Examiners:

1)

[Signature]

2)

Dr-Princy K. G.

Quantitative analysis of oxalate content and nutritive study of selected fruits and vegetables

Project report submitted to the University of Calicut for partial fulfilment of the award of the degree of
B. Sc. Program in Chemistry

By

ABIYA P.J

CRAUSCH002

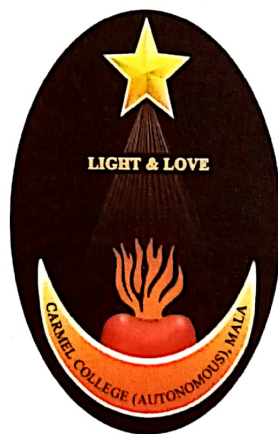
UNDER THE SUPERVISION OF

Dr. Roshini K. Thumpakara

Assistant Professor

Department of Chemistry

Carmel College (Autonomous), Mala



DEPARTMENT OF CHEMISTRY

CARMEL COLLEGE (AUTONOMOUS), MALA

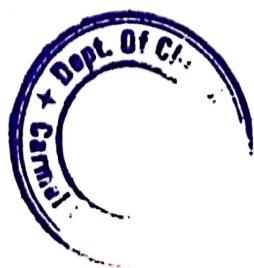
THRISSUR, KERALA

2022-2023

Roshini K. Thumpakara

Supervisor

Dr. Roshini. K.Thumpakara
Asst. Professor
Dept. of Chemistry
Carmel College, Mala



Princy K.G.

Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA





CARMEL COLLEGE (AUTONOMOUS), MALA

(Nationally Re-accredited with "A" grade)

Affiliated to University of Calicut

Mala-680732

CERTIFICATE

This is to certify that the report on the project entitled "Quantitative analysis of oxalate content and nutritive study of selected fruits and vegetables" is a bonafide record of the work carried out by **Abiya P.J (Reg No. CRAUSCH002)** under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.

Princy K G R
Head of the Department
Dr. Roshini K. Thumpakara
Asst. Professor
Dept. of Chemistry
Carmel College, Mala



Roshini
Faculty in charge
Dr. Roshini K. Thumpakara
Assistant Professor

Submitted for project Evaluation held on

Examiners:

1)

2) *Dr. Princy K G R*



Quantitative analysis of oxalate content and nutritive study of selected fruits and vegetables

Project report submitted to the University of Calicut for partial fulfilment of the award of the degree of
B. Sc. Program in Chemistry

By

**AINA BABU
CRAUSCH003**

UNDER THE SUPERVISION OF

Dr. Roshini K. Thumpakara

Assistant Professor

Department of Chemistry

Carmel College (Autonomous), Mala

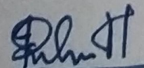


DEPARTMENT OF CHEMISTRY

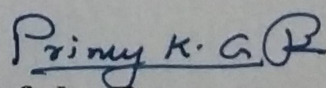
CARMEL COLLEGE (AUTONOMOUS), MALA

THRISSUR, KERALA

2022-2023


Supervisor
Dr. Roshini K. Thumpakara
Asst. Prof.
Dept. of Chem.
Carmel College, Mala




Head of the Department
Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



CARMEL COLLEGE (AUTONOMOUS), MALA

(Nationally Re-accredited with "A" grade)

Affiliated to University of Calicut

Mala-680732

CERTIFICATE

This is to certify that the report on the project entitled "**Quantitative analysis of oxalate content and nutritive study of selected fruits and vegetables**" is a bonafide record of the work carried out by **Aina Babu (Reg No. CRAUSCH003)** under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.

Princy K. G. B
Head of the Department
Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



Roshini K. Thumpakara
Faculty in charge
Dr. Roshini K. Thumpakara
Assistant Professor

Submitted for project Evaluation held on

Examiners:

1)

2)

Dr. Princy K.G. B

Quantitative analysis of oxalate content and nutritive study of selected fruits and vegetables

Project report submitted to the University of Calicut for partial fulfilment of the award of the degree of
B. Sc. Program in Chemistry

By

Aleena Lowrance

CRAUSCH004

UNDER THE SUPERVISION OF

Dr. Roshini K. Thumpakara

Assistant Professor

Department of Chemistry

Carmel College (Autonomous), Mala



DEPARTMENT OF CHEMISTRY

CARMEL COLLEGE (AUTONOMOUS), MALA

THRISSUR, KERALA

2022-2023

Roshini

Supervisor

Dr. Roshini K. Thumpakara
Asst. Prof.
Dept. of Chemistry
Carmel College, Mala



Princy K.G.

Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



CARMEL COLLEGE (AUTONOMOUS), MALA

(Nationally Re-accredited with "A" grade)

Affiliated to University of Calicut

Mala-680732

CERTIFICATE

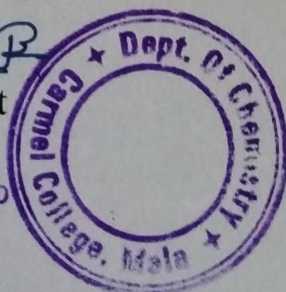
This is to certify that the report on the project entitled "Quantitative analysis of oxalate content and nutritive study of selected fruits and vegetables" is a bonafide record of the work carried out by **Aleena Lowrance (Reg No. CRAUSCH004)** under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.

Princy K.G.P.

Head of the Department

Dr. PRINCY K.G.

**ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA**



Roshini K. Thumpakara

Faculty in charge

Dr. Roshini K. Thumpakara

Assistant Professor

Submitted for project Evaluation held on

Examiners:

1)

[Signature]

2)

Dr. Princy K.G.P.

Quantitative analysis of oxalate content and nutritive study of selected fruits and vegetables

Project report submitted to the University of Calicut for partial fulfilment of the award of the degree of B. Sc. Program in Chemistry

By

Anupama Biju

CRAUSCH005

UNDER THE SUPERVISION OF

Dr. Roshini K. Thumpakara

Assistant Professor

Department of Chemistry

Carmel College (Autonomous), Mala



DEPARTMENT OF CHEMISTRY

CARMEL COLLEGE (AUTONOMOUS), MALA

THRISSUR, KERALA

2022-2023

Supervisor

Dr. Roshini. K. Thumpakara
Asst. Professor
Dept. of Chemistry
Carmel College, Mala



Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



CARMEL COLLEGE (AUTONOMOUS), MALA

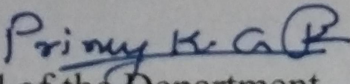
(Nationally Re-accredited with "A" grade)

Affiliated to University of Calicut

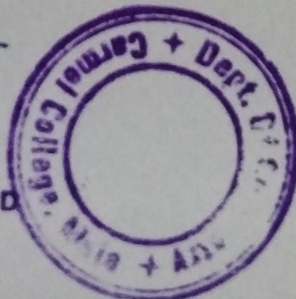
Mala-680732

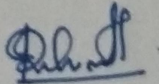
CERTIFICATE

This is to certify that the report on the project entitled "Quantitative analysis of oxalate content and nutritive study of selected fruits and vegetables" is a bonafide record of the work carried out by Anupama Biju (Reg No. CRAUSCH005) under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.


Head of the Department

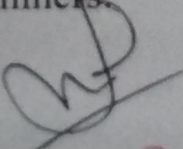
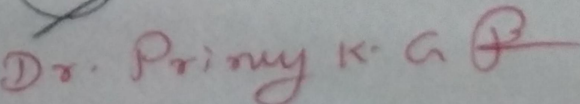
Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA




Faculty in charge
Dr. Roshini K. Thumpakara
Assistant Professor

Submitted for project Evaluation held on

Examiners:

- 1) 
- 2) 

ANTIBACTERIAL STUDIES OF THIOUREA DERIVATIVES AND THEIR COPPER AND SILVER COMPLEXES

Project report submitted to the University of Calicut for
partial fulfillment of the award of the degree of
B.Sc. Program in Chemistry

By

J I J A P S

CRAUSCH006

UNDER THE SUPERVISION OF

Dr. PRINCY K G

Associate Professor

Department of Chemistry

Carmel College(Autonomous), Mala



DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE(AUTONOMOUS), MALA
THRISSUR, KERALA

2022-2023

Princy K. G. R.
Supervisor



Princy K. G. R.
Head of the Department
Dr. PRINCY K.G.



CARMEL COLLEGE(AUTONOMOUS), MALA

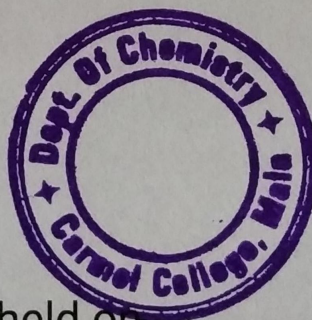
(Nationally Re-accredited with "A" grade)
Affiliated to University of Calicut
Mala-680732

CERTIFICATE

This is to certify that the report on the project entitled "ANTIBACTERIAL STUDIES OF THIOUREA DERIVATIVES AND THEIR COPPER AND SILVER COMPLEXES" is a bonafide record of the work carried out by JIJA P S (Reg. No. CRAUSCH006) under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College(Autonomous), Mala during the academic year 2022-2023.

Princy K.G.P
Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



Faculty in charge

Princy K.G.P
Dr. PRINCY K G

Associate Professor

Submitted for project evaluation held on

Examiners:

1) *[Signature]*

2)

ANTIBACTERIAL STUDIES OF THIOUREA DERIVATIVES AND THEIR COPPER AND SILVER COMPLEXES

Project report submitted to the University of Calicut for
partial fulfillment of the award of the degree of
B.Sc. Program in Chemistry

By

MILU THOMAS

CRAUSCH007

UNDER THE SUPERVISION OF

Dr. PRINCY K G

Associate Professor

Department of Chemistry

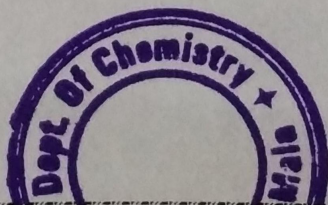
Carmel College(Autonomous), Mala



DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE(AUTONOMOUS), MALA
THRISSUR, KERALA

2022-2023

Princy K.G.P.
Supervisor



Princy K.G.P.
Head of the Department



CARMEL COLLEGE(AUTONOMOUS), MALA

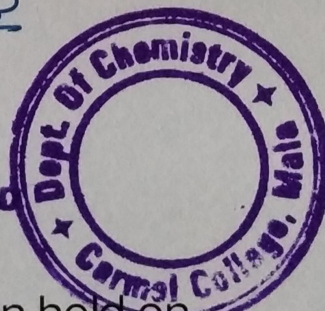
(Nationally Re-accredited with "A" grade)
Affiliated to University of Calicut
Mala-680732

CERTIFICATE

This is to certify that the report on the project entitled "ANTIBACTERIAL STUDIES OF THIOUREA DERIVATIVES AND THEIR COPPER AND SILVER COMPLEXES" is a bonafide record of the work carried out by MILU THOMAS (Reg. No. CRAUSCH007) under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College(Autonomous), Mala during the academic year 2022-2023.

Princy K.G.
Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



Faculty in charge

Princy K.G.
Dr. PRINCY K G

Associate Professor

Submitted for project evaluation held on

Examiners:

1)

2)

ANTIBACTERIAL STUDIES OF THIOUREA DERIVATIVES AND THEIR COPPER AND SILVER COMPLEXES

Project report submitted to the University of Calicut for
partial fulfillment of the award of the degree of
B.Sc. Program in Chemistry

By

NIVEDYA T K

CRAUSCH008

UNDER THE SUPERVISION OF

Dr. PRINCY K G

Associate Professor

Department of Chemistry

Carmel College(Autonomous), Mala



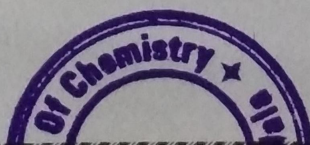
DEPARTMENT OF CHEMISTRY

CARMEL COLLEGE(AUTONOMOUS), MALA

THRISSUR, KERALA

2022-2023

Princy K.G.
Supervisor



Princy K.G.
Head of the Department
Dr. PRINCY K.G.



CARMEL COLLEGE(AUTONOMOUS), MALA

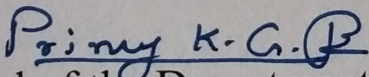
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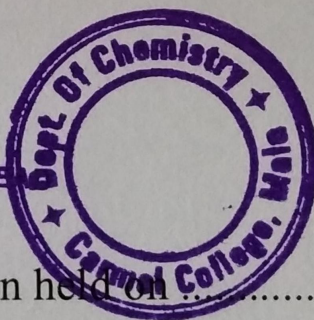
Mala-680732

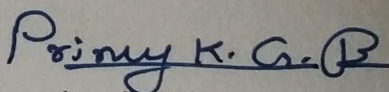
CERTIFICATE

This is to certify that the report on the project entitled "ANTIBACTERIAL STUDIES OF THIOUREA DERIVATIVES AND THEIR COPPER AND SILVER COMPLEXES" is a bonafide record of the work carried out by NIVEDYA T K (Reg. No. CRAUSCH008) under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College(Autonomous), Mala during the academic year 2022-2023.


Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA




Faculty in charge

Dr. PRINCY K G
Associate Professor

Submitted for project evaluation held on

Examiners:

1)

2)

ANTIBACTERIAL STUDIES OF THIOUREA DERIVATIVES AND THEIR COPPER AND SILVER COMPLEXES

Project report submitted to the University of Calicut for
partial fulfillment of the award of the degree of
B.Sc. Program in Chemistry

By

SANDHRA SANTHOSH K

CRAUSCH009

UNDER THE SUPERVISION OF

Dr. PRINCY K G

Associate Professor

Department of Chemistry

Carmel College(Autonomous), Mala



DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE(AUTONOMOUS), MALA
THRISSUR, KERALA

2022-2023

Princy K.G.
Supervisor
Dr. PRINCY K.G.



Princy K.G.
Head of the Department
Dr. PRINCY K.G.



CARMEL COLLEGE(AUTONOMOUS), MALA

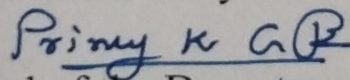
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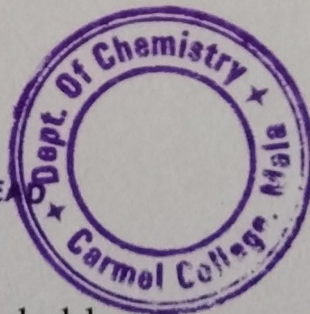
Affiliated to University of Calicut

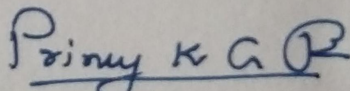
Mala-680732

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Head of the Department
Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA



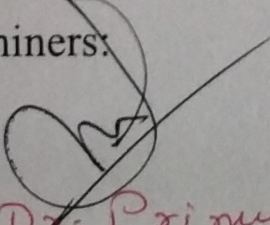

Faculty in charge
Dr. PRINCY K G
Associate Professor

Submitted for project evaluation held on

Examiners:

1)

2)


Dr. Princy K.G.

ANTIBACTERIAL STUDIES OF THIOUREA DERIVATIVES AND THEIR COPPER AND SILVER COMPLEXES

Project report submitted to the University of Calicut for
partial fulfillment of the award of the degree of
B.Sc. Program in Chemistry

By

SREETHA K A

CRAUSCH010

UNDER THE SUPERVISION OF

Dr. PRINCY K G

Associate Professor

Department of Chemistry

Carmel College(Autonomous), Mala



DEPARTMENT OF CHEMISTRY

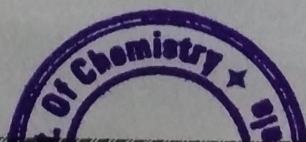
CARMEL COLLEGE(AUTONOMOUS), MALA

THRISSUR, KERALA

2022-2023

Princy K.G.
Supervisor

Dr. Princy K.G.



Princy K.G.
Head of the Department
Dr. PRINCY K.G.
ASSOCIATE PROFESSOR



CARMEL COLLEGE(AUTONOMOUS), MALA

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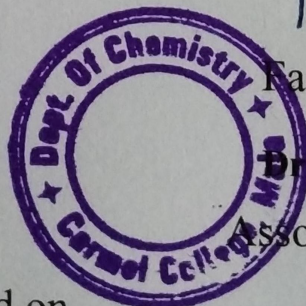
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Princy K.G. P

Head of the Department

**Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
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Princy K.G. P

Faculty in charge

Dr. PRINCY K G

Associate Professor

Submitted for project evaluation held on

Examiners:

1)

2)

Dr. Princy K.G. P

**QUANTITATIVE DETERMINATION OF VITAMIN C IN COMMON
EDIBLE FOOD SOURCES BY REDOX TITRATION**

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

ADITHYA P.A

CRAUSCH011

UNDER THE SUPERVISION OF

Dr. Roshini K. Thumpakara

Assistant Professor
Department of Chemistry
Carmel College (Autonomous), Mala



**DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE (AUTONOMOUS), MALA
THRISSUR, KERALA**

2022-2023

Supervisor

Dr. Roshini. K.Thumpakara
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Dr. PRINCY K.G.
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CARMEL COLLEGE, MALA

(Nationally Re-accredited with "A" grade)

Affiliated to University of Calicut

Mala-680732

CERTIFICATE

This is to certify that the report on the project entitled "**Quantitative determination of Vitamin C in common edible food sources by redox titration**" is a bonafide record of the work carried out by **ADITHYA P.A (Reg No. CRAUSCH011)** under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.

Princy K.G.

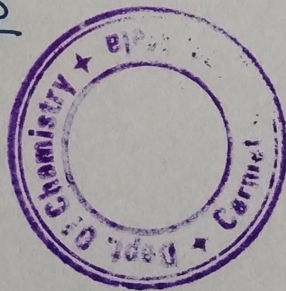
Head of the Department

Dr. PRINCY K.G.

ASSOCIATE PROFESSOR & HEAD

DEPT. OF CHEMISTRY

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Roshini K. Thumpakara

Faculty in charge

Dr. Roshini K. Thumpakara

Assistant Professor

Submitted for project Evaluation held on ..12/4/23...

Examiners:

1)

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Dr. Princy K.G.

**QUANTITATIVE DETERMINATION OF VITAMIN C IN COMMON
EDIBLE FOOD SOURCES BY REDOX TITRATION**

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

AFEEHA PARVIN K.A

CRAUSCH012

UNDER THE SUPERVISION OF

Dr. Roshini K. Thumpakara

Assistant Professor

Department of Chemistry

Carmel College (Autonomous), Mala



**DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE (AUTONOMOUS), MALA
THRISSUR, KERALA**

2022-2023

Roshini K. Thumpakara

Supervisor

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Carmel College, Mala**



Princy K.G.

Head of the Department

**Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA**



CARMEL COLLEGE, MALA

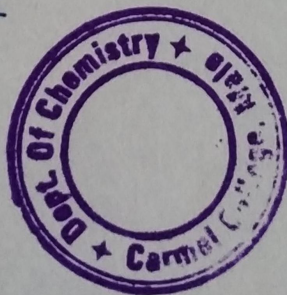
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Mala-680732

CERTIFICATE

This is to certify that the report on the project entitled "**Quantitative determination of Vitamin C in common edible food sources by redox titration**" is a bonafide record of the work carried out by **AFEEHA PARVIN K.A (Reg No. CRAUSCH012)** under my supervision and guidance towards the partial fulfilment of requirement for the award of the degree of Bachelor of Science in Chemistry at Carmel College (Autonomous), Mala in the academic year 2022-2023.

Princy K.G.P
Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
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Roshini K.
Faculty in charge

Dr. Roshini K. Thumpakara
Assistant Professor

Submitted for project Evaluation held on ...12/4/23...

Examiners:

1)

2)

Dr. Princy K.G.P

**QUANTITATIVE DETERMINATION OF VITAMIN C IN COMMON
EDIBLE FOOD SOURCES BY REDOX TITRATION**

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

AGNES E. J

CRAUSCH013

UNDER THE SUPERVISION OF

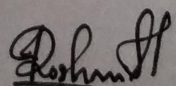
Dr. Roshini K. Thumpakara

Assistant Professor
Department of Chemistry
Carmel College (Autonomous), Mala



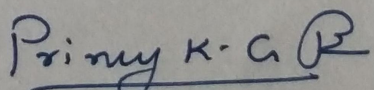
**DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE (AUTONOMOUS), MALA
THRISSUR, KERALA**

2022-2023


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CARMEL COLLEGE, MALA

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Mala-680732

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Princy K.G.

Head of the Department

Dr. PRINCY K.G.
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CARMEL COLLEGE, MALA



Roshini K. Thumpakara

Faculty in charge

Dr. Roshini K. Thumpakara
Assistant Professor

Submitted for project Evaluation held on ...*12/4/23*.....

Examiners:

1)

[Signature]

2)

Dr. Princy K.G.

**QUANTITATIVE DETERMINATION OF VITAMIN C IN COMMON
EDIBLE FOOD SOURCES BY REDOX TITRATION**

Project report submitted to the University of Calicut for partial fulfilment of the
award of the degree of

B. Sc. Program in Chemistry

By

ANABEL ELIZABETH JIJI

CRAUSCH014

UNDER THE SUPERVISION OF

Dr. Roshini K. Thumpakara

Assistant Professor

Department of Chemistry

Carmel College (Autonomous), Mala

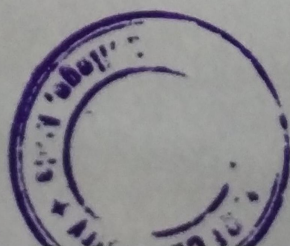


**DEPARTMENT OF CHEMISTRY
CARMEL COLLEGE (AUTONOMOUS), MALA
THRISSUR, KERALA**

2022-2023

Supervisor

Dr. Roshini K. Thumpakara
Asst. Profes
Dept. of Chem



Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY



CARMEL COLLEGE, MALA

(Nationally Re-accredited with "A" grade)

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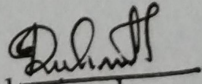
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Head of the Department

Dr. PRINCY K.G.
ASSOCIATE PROFESSOR & HEAD
DEPT. OF CHEMISTRY
CARMEL COLLEGE, MALA




Faculty in charge

Dr. Roshini K. Thumpakara
Assistant Professor

Submitted for project Evaluation held on ...12/4/23...

Examiners:

1) 

2) Dr. Princy K.G. 