



# UNION CHRISTIAN COLLEGE ALUVA-2



SSR 5<sup>th</sup> CYCLE 2023



Criterion 1

## 1.3.2 Student Projects and Internships

**UNION CHRISTIAN COLLEGE, ALUVA**

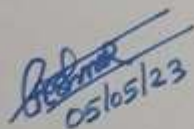
**DEPARTMENT OF BOTANY**

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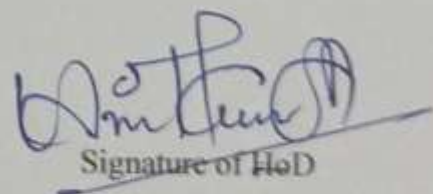


**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled “**EFFECT OF OSMOTIC STRESS ON SEED GERMINATION AND SEEDLING CHARACTERS OF GREEN GRAM IN *VIGNA RADIATA***” is submitted by **MANU SAJEEVAN (200021023870)** in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of **Dr. Reshmi G R**. The work is carried out as an in-house project by the student.

  
05/05/23

Signature of Guide

  
Signature of HoD

4/05/2023

# UNION CHRISTIAN COLLEGE, ALUVA

## DEPARTMENT OF BOTANY

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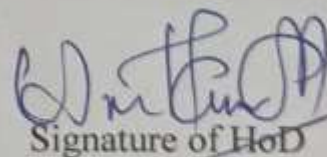


### CERTIFICATE OF COMPLETION

This is to certify that the project entitled EFFECT OF VITAMIN D AND VITAMIN B ON GROWTH OF RADICLE IN *Vigna radiata* is submitted by **MOHAMMED ARIF PT** (200021023856) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of **MS SAINABA AA**. The work is carried out as an in-house project by the student.



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Signature of HoD

4/05/2023



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**DEPARTMENT OF BOTANY**

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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "STUDIES ON PHYLLANTHUS MYRTIFOLIUS DIVERSITY OF UNION CHRISTIAN COLLEGE ALUVA" is submitted by APARNA E S (200021023868) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science under the guidance of Dr. Justin R Nayagam. The work is carried out as an in-house project by the student.

Signature of Guide



Signature of HoD

4/05/2023

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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "PRELIMINARY PHYTOCHEMICAL SCREENING AND PIGMENT QUANTIFICATION IN LEAVES OF *MORINGA OLERIFERA* LAM. AND *PSIDIUM GUAJAVA* L." is submitted by MIZNA M A (200021023855) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of DR. PRIYA M.P. The work is carried out as an in-house project by the student.

  
PRIYA M.P.  
Signature of Guide

  
Signature of HoD

4/05/2023

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**DEPARTMENT OF BOTANY**

(Affiliated to Mahatma Gandhi University Kottayam)



**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "A STUDY ON THE PRODUCTION OF BIOCHAR FROM *Alternanthera bettzickiana* (Regel) G. Nichols. AND ITS APPLICATION IN INDUSTRIAL DYE ADSORPTION" is submitted by SHREYA R PAI(200021023862) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of Dr. Anumol Jose. The work is carried out as an in-house project by the student.

Signature of Guide

Signature of HoD

4/05/2023



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**DEPARTMENT OF BOTANY**

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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "**COMPARATIVE ASSESSMENT OF AIR POLLUTION IMPACT ON MORPHOANATOMICAL AND STOMATAL INDEX OF PLANTS GROWING UNDER POLLUTED AND NONPOLLUTED AREA**" is submitted by PRITHVIRAJ P S (200021023858) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of Dr. Reshmi G R. The work is carried out as an in-house project by the student.

*Reshmi G R*  
05/05/23

Signature of Guide

*Val*  
*Binji*  
*06/05/23*

*Prithviraj P S*  
Signature of HoD

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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "ASSESSMENT OF MORPHO ANATOMICAL AND STOMATAL CHARACTERISTIC OF SOME SELECTED MEDICINAL PLANTS" is submitted by SUMAYYA T A (200021023876) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of Dr. Reshmi G R. The work is carried out as an in-house project by the student.

*Reshmi G R*  
06/05/23

Signature of Guide

*Sumayya T A*  
05/05/23

Signature of Holder



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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled “**PIGMENTS QUANTIFICATION AND PRELIMINARY PHYTOCHEMICAL SCREENING IN LEAVES OF *Ficus religiosa* L. AND *Tamarindus indica* L.**” is submitted by **POORNENDU R ACHARYA** (200021023859) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of **DR. Priya M P.** The work is carried out as an in-house project by the student.

Priya M.P.

Signature of Guide

Signature of HoD

04/05/2023

**UNION CHRISTIAN COLLEGE, ALUVA**

**DEPARTMENT OF BOTANY**

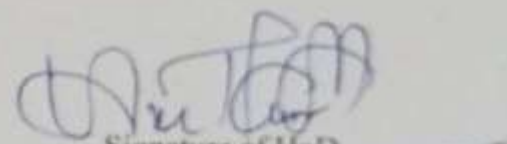
(Affiliated to Mahatma Gandhi University Kottayam)



**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "EFFECT OF MEFENAMIC ACID AND AZITHROMYCIN ON GROWTH OF RADICLE IN *Vigna radiata*" is submitted by ANEENA JOHN (200021023866) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of MS Sainaba A A. The work is carried out as an in-house project by the student.

  
Signature of Guide

  
Signature of HoD  
04/05/2023

# UNION CHRISTIAN COLLEGE, ALUVA


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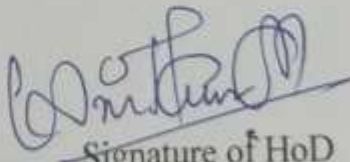
(Affiliated to Mahatma Gandhi University, Kottayam)



### CERTIFICATE OF COMPLETION

This is to certify that the project entitled EFFECT OF DROUGHT AND SALT STRESS ON SEED GERMINATION OF Great Millet-Jowar (*Sorghum bicolor* (L.) Moench) is submitted by VISHNU DAS T A (200021023877) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of Dr. PRIYA M P. The work is carried out as an in-house project by the student.

  
PRIYA M.P.  
Signature of Guide

  
Signature of HoD  
04/05/2023



# UNION CHRISTIAN COLLEGE, ALUVA

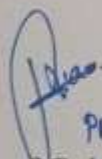
## DEPARTMENT OF BOTANY

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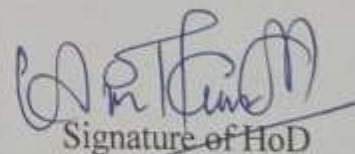
### CERTIFICATE OF COMPLETION

This is to certify that the project entitled EFFECT OF DROUGHT AND SALT STRESS ON SEED GERMINATION OF FOXTAIL MILLET (*Setaria italica* (L.) P. beauvois)) is submitted by **BRIGHTLY SEBASTIAN** (200021023849) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of **Dr. Priya M P**. The work is carried out as an in-house project by the student.



PRIYA M.P.

Signature of Guide



Signature of HoD

4/05/2023

# UNION CHRISTIAN COLLEGE, ALUVA

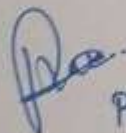
## DEPARTMENT OF BOTANY

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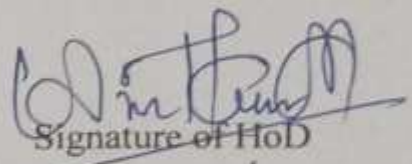
### CERTIFICATE OF COMPLETION

This is to certify that the project entitled EFFECT OF DROUGHT AND SALT STRESS ON SEED GERMINATION OF BAJRA MILLET (*Cenchrus americanus* (L.) Morrone) is submitted by ANANDHU KRISHNA K S (200021023846) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of **Dr. Priya M P.** The work is carried out as an in-house project by the student.



PRIYA M.P.

Signature of Guide



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4/05/2023

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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "**A STUDY ON THE PRODUCTION OF BIOCHAR FROM *Pennisetum pedicellatum* Tan. and *Tridax procumbens* L. AND ITS APPLICATION IN INDUSTRIAL DYE ADSORPTION**" is submitted by **ELSHA M ELIAS (200021023853)** in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of Dr. Anumol Jose. The work is carried out as an in-house project by the student.

Signature of Guide

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4/05/2023



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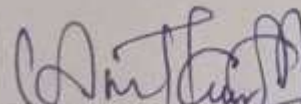
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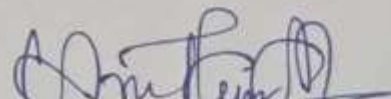
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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "A COMPARITIVE STUDY ON THE MORPHOLOGY AND ANATOMY OF SELECTED SPECIES OF THE GENUS *Abelmoschus*." is submitted by AFRA V A (200021023843) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of DR. M Anilkumar. The work is carried out as an in-house project by the student.

  
Signature of Guide

  
Signature of HoD

4/05/2023

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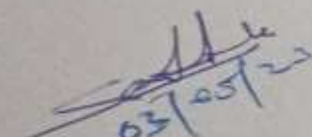
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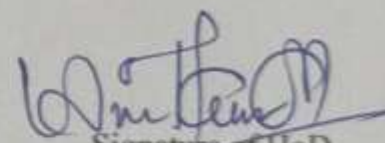
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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "EFFECT OF PARACETAMOL AND AMOXICILLIN COMPOUND ON GROWTH OF RADICLE IN *Vigna radiata* is submitted by PRATHEWSH M P (200021023874) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of Ms Sainaba A A. The work is carried out as an in-house project by the student.

  
03/05/23  
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Signature of HoD

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**DEPARTMENT OF BOTANY**

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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "THE COMPARATIVE STUDY ON SPECTROPHOTOMETRIC ANALYSIS OF CHLOROPHYLL AND CAROTENOID PIGMENTS FROM ANNATTO CARROT YELLOW CORN AND TOMATO " is submitted by ASIYA M A (200021023869) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science under the guidance of Dr. Reshmi G R. The work is carried out as an in-house project by the student.

  
03/05/23  
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04/05/2023

  
Signature of HoD  
04/05/2023



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**DEPARTMENT OF BOTANY**

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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "STUDIES ON DRACAENA PLANT DIVERSITY OF UNION CHRISTIAN COLLEGE ALUVA" is submitted by NIKHITHA LAL (200021023857) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science under the guidance of Dr. Justin R Nayagam. The work is carried out as an in-house project by the student.

Signature of Guide



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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "STUDIES ON EXCOECARIA COCHINCHINENSIS LOUR DIVERSITY OF UNION CHRISTIAN COLLEGE, ALUVA" is submitted by FATHIMA O A (200021023854) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science under the guidance of Dr. Justin R Nayagam. The work is carried out as an in-house project by the student.

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04/05/2023

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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled “**STUDIES ON CROTON DIVERSITY OF UNION CHRISTIAN COLLEGE ALUVA**” is submitted by **SREELAKSHMI N S** (200021023863) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science under the guidance of Dr. Justin R Nayagam. The work is carried out as an in-house project by the student.

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04/05/2023



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### CERTIFICATE OF COMPLETION

This is to certify that the project entitled "STUDIES ON CORDYLINE PLANT DIVERSITY OF UNION CHRISTIAN COLLEGE ALUVA" is submitted by AKSHAYA O S (200021023845) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science under the guidance of Dr. Justin R Nayagam. The work is carried out as an in-house project by the student.

Signature of Guide



Signature of HoD

04/05/2023

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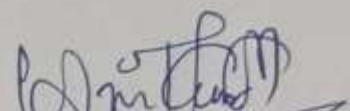
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**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled “**EFFECT OF MEFENAMIC ACID AND AZITHROMYCIN ON GROWTH OF RADICLE IN *Vigna radiata***” is submitted by ANEENA JOHN (200021023866) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of MS Sainaba A A. The work is carried out as an in-house project by the student.

  
Signature of Guide

  
Signature of HoD

04/05/2023

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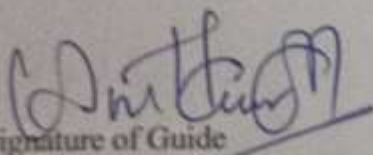
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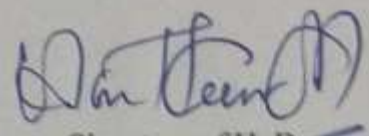
(Affiliated to Mahatma Gandhi University Kottayam)



**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "ANTHOCYANIN VARIATIONS IN DIFFERENT COLOUR VARIANTS OF *BOUGAINVILLEA* SPECIES" is submitted by ELDHOSE V K (200021023852) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of Dr. M Anilkumar. The work is carried out as an in-house project by the student.

  
Signature of Guide

  
Signature of HoD  
04/05/2023



**UNION CHRISTIAN COLLEGE, ALUVA**

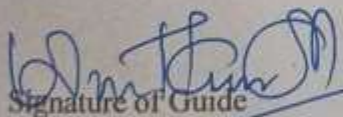
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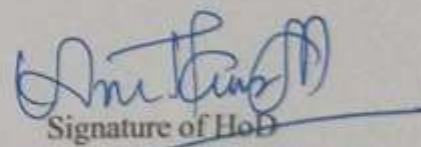
(Affiliated to Mahatma Gandhi University Kottayam)



**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "A SURVEY ON THE MEDICINAL PLANTS USED IN THE PREPARATION OF NEELIBRINGATHI HAIR OIL" is submitted by ROSE ANN MARY PAUL (200021023860) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of Dr. M Anilkumar. The work is carried out as an in-house project by the student.

  
Signature of Guide

  
Signature of HoD  
04/05/2023

**UNION CHRISTIAN COLLEGE, ALUVA**

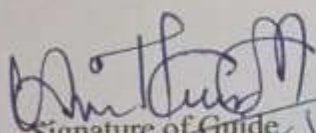
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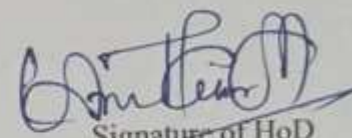
(Affiliated to Mahatma Gandhi University Kottayam)



**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "**Phytochemical studies on *Aloe vera (L.) Burm.f***" is submitted by ANNA SAJU (200021023867) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of Dr. Anilkumar M. The work is carried out as an in-house project by the student.

  
Signature of Guide  
03/05/22

  
Signature of HoD

**UNION CHRISTIAN COLLEGE, ALUVA**

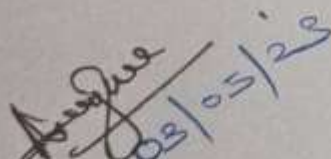
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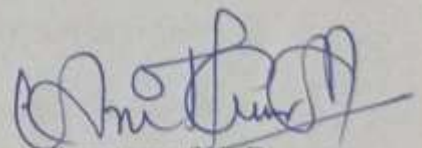
(Affiliated to Mahatma Gandhi University Kottayam)



**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled “**A STUDY ON THE PRODUCTION OF BIOCHAR FROM *Ludwigia Peruviana* (L.) H.Hara AND ITS APPLICATION IN INDUSTRIAL DYE ADSORPTION**” is submitted by ANUPAMA K A (200021023848) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science Botany under the guidance of Dr. Anumol Jose. The work is carried out as an in-house project by the student.

  
Signature of Guide

  
Signature of HoD



**UNION CHRISTIAN COLLEGE, ALUVA**

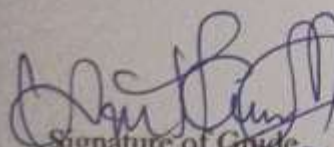
**DEPARTMENT OF BOTANY**

(Affiliated to Mahatma Gandhi University Kottayam)



**CERTIFICATE OF COMPLETION**

This is to certify that the project entitled "A COMPARATIVE STUDY ON THE STOMATAL INDICES OF XEROPHYTE MESOPHYTE HYDROPHYTE" is submitted by NABEESATHUL MISIRIYA (200021023872) in partial fulfilment of the requirements for the award of the Degree in Bachelor of Science under the guidance of Dr. M Anilkumar. The work is carried out as an in-house project by the student.

  
Signature of Guide  
03/03/23

  
Signature of HoD

**M.Sc. Botany**  
**Supporting Documents: 26**



*Celebrating 100 Years of Merit-based Service*  
**UNION CHRISTIAN COLLEGE, ALUVA**

(Affiliated to Mahatma Gandhi University, Kottayam, Kerala)

Reaccredited with 'A' Grade by NAAC (IV cycle)

Aluva - 683 102, Ernakulam Dist., Kerala. Ph: +91 484 2609194, 8281811703

Email: ucc@uccollege.edu.in Website: www.uccollege.edu.in



**Dr. M. ANILKUMAR**  
Head of the Department of Botany

Date 18/09/23

**CERTIFICATION OF COMPLETION**

This is to certify that the project entitled "A comparative study of drought and salt stress tolerance in seed germination of two millets: sorghum (*Sorghum bicolor*(L.)Moench) and foxtail millet (*Seteria italica*(L.) P. Beauvois)." submitted by Sreekala T, M.Sc. Botany (2021 - 2023), Reg. No. 2100011009300 in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of Dr. Priya MP. The work is carried out as an in-house project by the student.

  
Dr. M. Anilkumar

Head of the department

Dr. M. ANILKUMAR, Ph.D  
Associate Professor & Head  
Department of Botany  
Union Christian College  
Aluva, Ernakulam-683102, Kerala






**UNION CHRISTIAN COLLEGE**  
(Affiliated to Mahatma Gandhi University)  
Alwaye-2 Ernakulam (District) Kerala, India  
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(NAAC)

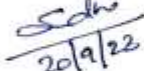
**CERTIFICATE**


This is to certify that this project work entitled "**A comparative study of drought and salt stress tolerance in seed germination of two millets: sorghum (*Sorghum bicolor* (L.) Moench) and foxtail millet (*Setaria italica* (L.) P. Beauvois)**" submitted to Mahatma Gandhi University in partial fulfillment of the requirement for the award of degree of Master of Science in Botany is a record of original work done by **SREEKALA T, M.Sc. Botany (2021-23), Reg no: 210011009300**, during the period of her study under my supervision and guidance. No part of the project work has been submitted by her for any other degree, diploma, or similar title before.

Aluva  
September 2023

  
**Dr. Priya M. P**  
Assistant professor  
Department of Botany

Valid on 20/9/2023

1. Dr. Sinder. N   
20/9/22.

2. Dr. Banji. E.C.   
20/9/2023



## UNION CHRISTIAN COLLEGE, ALUVA

(Affiliated to Mahatma Gandhi University, Kottayam, Kerala)

Reaccredited with 'A' Grade by NAAC (TV cycle)

Aluva - 683 102, Ernakulam Dist, Kerala. Ph. +91 484 2609194, 8281811703

Email: ucc@uccollege.edu.in Website: www.uccollege.edu.in



**Dr. M. ANILKUMAR**  
Head of the Department of Botany

Date 18/09/2023

### CERTIFICATION OF COMPLETION

This is to certify that the project entitled "**Effect of paracetamol, ibuprofen and diclofenac on growth of radicle in *Vigna radiata***" submitted by **Sreehari V S, M.Sc. Botany (2021 - 2023), Reg. No. 2100011009299** in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of **Ms. Sainaba A A**. The work is carried out as an in-house project by the student.

  
Dr. M. Anilkumar

Head of the Department  
Dr. M. ANILKUMAR, Ph.D  
Associate Professor & Head  
Department of Botany  
Union Christian College  
Aluva, Ernakulam-683102, Kerala



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(Affiliated to MG University)

Alwaye-2 Ernakulam (District) Kerala, India

Accredited at A level by the National Assessment and Accreditation Council (NAAC)

### CERTIFICATE

This is to certify that the Dissertation entitled "Effect of paracetamol, ibuprofen and diclofenac on growth of radicle in *Vigna radiata*" submitted to Mahatma Gandhi University in partial fulfillment of the requirement for the award of degree of Master of science in Botany is a record of review work done by Sreehari V S. M.Sc. Botany (2021 - 2023), Reg no: 200011009299 during the period of her study under my supervision and guidance and that it has not previously formed the basis for the award of any degree or fellowship or similar titles of university.

Aluva  
September, 2023

Valand or 2/9/2023

for Ms. Sainaba A  
Supervising guide  
Faculty  
18/9/23

Department of Botany  
U C college Aluva

1. Dr. Sindee. N Sdn  
20/9/23.

2. Dr. Baijin. E. C. Baijin. E. C.  
20/09/2023





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Email: ucc@uccollege.edu.in Website: www.uccollege.edu.in



**Dr. M. ANILKUMAR**  
Head of the Department of Botany

Date 18/9/23

**CERTIFICATION OF COMPLETION**

This is to certify that the project entitled "**Molecular Docking of Selected Phytochemicals of 'Dasapushpam' against Nipah Virus Attachment Glycoprotein and its' comparison with Ribavirin.**" submitted by **Rinnu Jose, M.Sc. Botany (2021 - 2023), Reg. No. 2100011009294** in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of **Dr. M. Anilkumar**. The work is carried out as an in-house project by the student.

  
18/9/23  
**Dr. M. Anilkumar**

**Guide and Head**  
**Dr. M. ANILKUMAR, Ph.D**  
Associate Professor & Head  
Department of Botany  
Union Christian College  
Aluva, Ernakulam-683102, Kerala  
Associate Professor & Head  
Department of Botany  
Union Christian College  
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Email: ucc@uccollege.edu.in Website: www.uccollege.edu.in



**Dr. M. ANILKUMAR**  
Head of the Department of Botany

Date: 18/9/23

**CERTIFICATE**

This is to certify that the dissertation entitled "**Molecular Docking of Selected Phytochemicals of 'Dasapushpam' against Nipah Virus Attachment Glycoprotein and its' comparison with Ribavirin.**" submitted to Mahatma Gandhi University is an original piece of work done by **Rinnu Jose (210011009298)** for the award of Master of Science in Botany (2021-23) under my supervision and guidance.

*Valid on 20/09/2023*

**Dr. M. Anilkumar**

**Dr. M. ANILKUMAR**  
Associate Professor & Head  
Department of Botany  
Union Christian College  
Aluva, Ernakulam-683102, Kerala

1. Dr. Sreedu. N *Sdu*  
20/9/23.

2. Dr. Baiji. E.C. *Baiji EC*



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**Dr. M. ANILKUMAR**  
Head of the Department of Botany

Date 18/09/23

### CERTIFICATION OF COMPLETION

This is to certify that the project entitled "A comparative study of drought and salt stress tolerance in seed germination of two millets: pearl millet (*Pennisetum glaucum* (L.) R. Br.) and finger millet (*Eleusine coracana* Gaertn.)" submitted by Parvathy Suresh, M.Sc. Botany (2021 - 2023), Reg. No. 2100011009297 in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of Dr. Priya M P. The work is carried out as an in-house project by the student.

  
Dr. M. Anilkumar

Head of the Department  
**Dr. M. ANILKUMAR, Ph.D**  
Associate Professor & Head  
Department of Botany  
Union Christian College  
Aluva, Ernakulam-683102, Kerala





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(Affiliated to Mahatma Gandhi University)  
Alwaye-2 Ernakulam (District) Kerala, India  
Re-accredited by National Assessment and Accreditation Council (NAAC)

### CERTIFICATE

This is to certify that this project work entitled "A comparative study of drought and salt stress tolerance in seed germination of two millets: Pearl millet (*Pennisetum glaucum* (L.) R. Br.) and finger millet (*Eleusine coracana* Gaertn.)" submitted to Mahatma Gandhi University in partial fulfillment of the requirement for the award of degree of Master of Science in Botany is a record of original work done by **PARVATHY SURESH, M.Sc. Botany (2021-23), Reg no: 210011009297**, during the period of her study under my supervision and guidance. No part of the project work has been submitted by her for any other degree, diploma, or similar title before.

*V. Jeyaraj*  
20/9/23

Aluva

September 2023

1. Dr. Sudeep N *Sdn*  
20/9/23

2. Dr. Baiji L. C. *Baiji L.C.*  
20/9/23

**Dr. Priya M. P**

Assistant professor

Department of Botany



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**Dr. M. ANILKUMAR**

Head of the Department of Botany

Date 18/9/23

### CERTIFICATION OF COMPLETION

This is to certify that the project entitled "**Isolation, Identification and Molecular Characterization of Endophytes in *Aloe vera* (L.) Burm. f.**" submitted by **Gopika S Nampoothiri**, M.Sc. Botany (2021 - 2023), **Reg. No. 2100011009294** in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of **Dr. M. Anilkumar**. The work is carried out as an in-house project by the student.

Dr. M. Anilkumar

**Guide and Head**

**Dr. M. ANILKUMAR, Ph.D**  
Associate Professor & Head  
Department of Botany  
Union Christian College  
Aluva, Ernakulam-683102, Kerala



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**Dr. M. ANILKUMAR**

Head of the Department of Botany

Date 18/9/23

### CERTIFICATE

This is to certify that the dissertation entitled "**Isolation, Identification and Molecular Characterization of Endophytes in *Aloe vera* (L.) Burm. f.**" submitted to Mahatma Gandhi University is an original piece of work done by **Gopika S Nampoothiri (210011009294)** for the award of Master of Science in Botany (2021-23) under my supervision and guidance.

Val ✓ on 20/9/2023

1. Dr. Suresh. N ✓  
20/9/23

2. Dr. Baiji. E.C. ✓  
20/9/2023

Dr. M. Anilkumar

18/9/23

Dr. M. ANILKUMAR, Ph.D  
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**Dr. M. ANILKUMAR**

Head of the Department of Botany

Date 18-9-23

### CERTIFICATION OF COMPLETION

This is to certify that the project entitled "**Invitro propagation and phytochemical screening of *Tridax procumbens*.**" submitted by Nivya C, M.Sc. Botany (2021 - 2023). **Reg. No. 2100011009296** in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of **Dr. Manju M. George**. The work is carried out as an in-house project by the student.

Dr. M. Anilkumar

Head of the Department  
**Dr. M. ANILKUMAR, Ph.D**  
Associate Professor & Head  
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Alwaye-2 Ernakulam (District) Kerala, India

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### CERTIFICATE

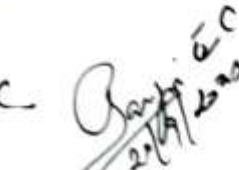
This is to certify that the Dissertation entitled "**IN VITRO PROPAGATION USING DIFFERENT HORMONES AND PHYTOCHEMICAL SCREENING IN *TRIDAX PROCUMBENS***" submitted to Mahatma Gandhi University in partial fulfillment of the requirement for the award of degree of Master of science in Botany is a record of review work done by **NIVYA C. M.Sc. Botany (2021 - 2023)**, Reg no: **210011009296** during the period of her study under my supervision and guidance and that it has not previously formed the basis for the award of any degree or fellowship or similar titles of university.

Aluva  
September, 2023

  
**Dr. Manju M. George**  
Supervising guide Faculty

Department of Botany  
U C College Aluva

1. Dr. Sreedee-N   
20/9/23

2. Dr. Baijin . E.C   
20/9/23



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**Dr. M. ANILKUMAR**

Head of the Department of Botany

Date 17-9-23

**CERTIFICATION OF COMPLETION**

This is to certify that the project entitled "**Invitro propagation and phytochemical screening *Aristolochia indica*.**" submitted by **Devika S, M.Sc. Botany (2021 - 2023), Reg. No. 2100011009292** in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of **Dr. Manju M. George**. The work is carried out as an in-house project by the student.

  
Dr. M. Anilkumar  
18/9/23  
Head of the department

**Dr. M. ANILKUMAR, Ph.D**  
Associate Professor & Head  
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Alwaye -2 Ernakulum district, Kerala, India

Accredited at A level by the National Assessment and Accreditation  
Council (NAAC)

### CERTIFICATE

This is to certify that the Dissertation entitled "IN VITRO PROPAGATION USING DIFFERENT HORMONES AND PHYTOCHEMICAL SCREENING IN *ARISTOLOCHIA INDICA*"

Submitted to Mahatma Gandhi University in partial fulfillment of the requirement for the award Of degree of Master of Science in Botany is a record of review work done by Devika S, M.Sc. Botany (2021 - 2023), Reg no: 210011009293 during the period of her study under my supervision and guidance and that it has not previously formed the basis for the award of any degree or fellowship or similar titles of university.


Aluva  
September, 2023

Valid on 20/9/2023

**Dr. Manju M. George**  
supervising guide  
Assistant professor

Department of Botany  
U C College Aluva

1. Dr. Suresh - N   
20/9/23

2. Dr. Baiji .E.C 





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**Dr. M. ANILKUMAR**  
Head of the Department of Botany

Date ...18.09.2023

**CERTIFICATION OF COMPLETION**

This is to certify that the project entitled "**Production, characterization and application studies of biochar prepared from *Ludwigia peruviana*(L)H. Hara and *Quisqualis indica* L.**" submitted by **Varsha T C**, M.Sc. Botany (2021 - 2023), Reg. No. **2100011009301** in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of **Dr. Anumol Jose**. The work is carried out as an in-house project by the student.

**Dr. M. Anilkumar**

**Head of the Department**  
**Dr. M. ANILKUMAR, Ph.D**  
Associate Professor & Head  
Department of Botany  
Union Christian College  
Aluva, Ernakulam-683102, Kerala



## UNION CHRISTIAN COLLEGE

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Alwaye-2 Ernakulam (District) Kerala, India

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Aluva

September, 2023

Dr. Anumol Jose

Assistant Professor

Department of Botany

UC college Aluva

1) Dr. Sander N <sup>Saku</sup>  
20/9/23

2) Dr. Baiji E-C <sup>Baiji EC</sup>  
20/10/2023



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**Dr. M. ANILKUMAR**  
Head of the Department of Botany

Date 18/09/23

### CERTIFICATION OF COMPLETION

This is to certify that the project entitled "A STUDY ON DYE ABSORPTION CAPACITY OF BIOCHAR PREPARED FROM *Acrosticum aureum* L. AND *Tridax procumbens* L. submitted by **Megha Mohan**, M.Sc. Botany (2021 - 2023), **Reg. No. 2100011009295** in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of **Dr. Anumol Jose**. The work is carried out as an in-house project by the student.

  
Dr. M. Anilkumar

**Head of the Department**

**Dr. M. ANILKUMAR, Ph.D**  
Associate Professor & Head  
Department of Botany  
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Aluva, Ernakulam-683102, Kerala



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Accreditation Council (NAAC)

### CERTIFICATE

This is to certify that the Dissertation entitled "A study on dye adsorption capacity of biochar prepared from *Acrostichum aureum L.* and *Tridax procumbens L.*" submitted to Mahatma Gandhi University in partial fulfillment of the requirement for the award of the degree of Master of Science in Botany is a record of review work done by **Megha mohan**, M.Sc. Botany (2021 - 2023), **Reg no: 210011009295** during the period of her study under my supervision and guidance, and that it has not previously formed the basis for the award of any degree or fellowship or similar titles of university.

Aluva

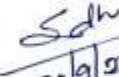
September, 2022

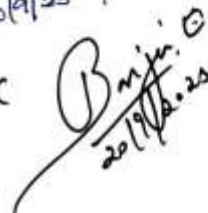
**Dr. Anumol Jose**

**Assistant professor**

**Department of Botany**

**UC college Aluva**

1) Dr. Sreedee. N   
20/9/23

2) Dr. Baiju. E. E   
20/9/23





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Email: ucc@uccollege.edu.in Website: www.uccollege.edu.in



**Dr. M. ANILKUMAR**  
Head of the Department of Botany

Date 18/09/2023

**CERTIFICATION OF COMPLETION**

This is to certify that the project entitled "ANALYTIC STUDY ON CHLOROPHYLL, CAROTENOIDS AND PHENOL CONTENT IN POPULAR CITRUS FRUIT SPECIES AND ITS COMPARISON WITH COMMERCIAL CITRUS FRUIT JUICES" submitted by **Aparna Sunil**, M.Sc. Botany (2021 - 2023), **Reg. No. 2100011009291** in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of **Dr. Justin R Nayagam**. The work is carried out as an in-house project by the student.

  
**Dr. M. Anilkumar**

**Head of the department**  
**Dr. M. ANILKUMAR, Ph.D**  
Associate Professor & Head  
Department of Botany  
Union Christian College  
Aluva, Ernakulam-683102, Kerala



UNION CHRISTIAN COLLEGE

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**CERTIFICATE**

This is to certify that the Dissertation entitled "**ANALYTIC STUDY ON CHLOROPHYLL, CAROTENOIDS AND PHENOL CONTENT IN POPULAR CITRUS FRUIT SPECIES AND ITS COMPARISON WITH COMMERCIAL CITRUS FRUIT JUICES**" submitted to Mahatma Gandhi University in partial fulfillment of the requirement for the award of degree of Bachelor of science in Botany is a record of original work done by **APARNA SUNIL** B.Sc./MSc Botany (2021 - 2023), **Reg no: 210011009291** during the period of her/his study under my supervision and guidance and that it has not previously formed the basis for the award of any degree or fellowship or similar titles of university.

Aluva  
September 2023

Vale on  
20/9/23

Dr. Justin R Nayagam  
Assistant Professor,  
Department of Botany  
UC College, Aluva

1) Dr. Sudee. N Edw  
20/9/23.

2) Dr. Baijen. E.C Baijen  
20/9/23



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Mr. **M. ANILKUMAR**  
Head of the Department of Botany

Date 18/9/2023

### CERTIFICATE OF COMPLETION

This is to certify that the project entitled "**Anti-quorum sensing and anti-biofilm activity of *Acmella ciliata* (Kunth) Cass. and *Centella asiatica* (L.) Urb. against biofilm forming isolates from oral buccal cavity**" is submitted by **Anjana M B**, M.Sc. Botany (2021 - 2023), **Reg no: 210011009290** in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of Dr. Reshmi G R. The work is carried out as an in-house project by the student.

  
Signature of HOD  
18/09/2023

**Dr. M. ANILKUMAR, Ph.D**  
Associate Professor & Head  
Department of Botany  
Union Christian College  
Aluva, Ernakulam-683102, Kerala



## UNION CHRISTIAN COLLEGE

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Alwaye-2 Ernakulam (District) Kerala, India

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### CERTIFICATE

This is to certify that the Dissertation entitled "Anti-quorum sensing and anti-biofilm activity of *Acmella ciliata* (Kunth) Cass. and *Centella asiatica* (L.) Urb. against biofilm forming isolates from oral buccal cavity" submitted to Mahatma Gandhi University in partial fulfillment of the requirement for the award of degree of Master of science in Botany is a record of review work done by **Anjana M B**, M.Sc. Botany (2021 - 2023), Reg no: 210011009290 during the period of her study under my supervision and guidance and that it has not previously formed the basis for the award of any degree or fellowship or similar titles of university.

Vale <sup>on</sup>  
20/9/2023

Aluva

September, 2023

1) Dr. Baiju E C  
20/9/2023

2) Dr. Sindhu N  
20/9/23

  
18/9/23

Dr. Reshmi G R

Supervising guide





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**Dr. M. ANILKUMAR**  
Head of the Department of Botany

Date 18/09/2023

**CERTIFICATION OF COMPLETION**

This is to certify that the project entitled "GLANDULAR ANATOMY AND FRUIT QUALITY ASSESSMENT ON EIGHT COMMERCIAL CITRUS SPECIES" submitted by **Beegum Safoora K M**, M.Sc. Botany (2021 - 2023), **Reg. No. 2100011009292** in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of **Dr. Justin R Nayagam**. The work is carried out as an in-house project by the student.

  
Dr. M. Anilkumar

Head of the department

**Dr. M. ANILKUMAR, Ph.D**  
Associate Professor & Head  
Department of Botany  
Union Christian College  
Aluva, Ernakulam-683102, Kerala



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Alwaye-2 Ernakulum (District) Kerala, India

Accredited at A level by the National Assessment and Accreditation Council (NAAC)

**CERTIFICATE**

This is to certify that the Dissertation entitled "**GLANDULAR ANATOMY AND FRUIT QUALITY ASSESSMENT ON EIGHT COMMERCIAL CITRUS SPECIES**" submitted to Mahatma Gandhi University in partial fulfillment of the requirement for the award of degree of Bachelor of science in Botany is a record of original work done by **BEEGUM SAFOORA K M B.Sc./MSc Botany (202 - 202)**, **Reg no: 210011009292** during the period of her/his study under my supervision and guidance and that it has not previously formed the basis for the award of any degree or fellowship or similar titles of university.

Aluva  
September, 2023

Valued on 20/9/2023  
" Dr. Sudeep N  
2) Dr. Binjith B. K. 20/9/23

Dr. Justin R Nayagam  
Assistant Professor,  
Department of Botany  
UC College, Aluva



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**Dr. M. ANILKUMAR**

Head of the Department of Botany

Date: 18/09/23

### CERTIFICATE OF COMPLETION

This is to certify that the project entitled "**Anti-biofilm and quorum quenching activity of *Cinnamomum verum* J. Presl and *Bauhinia acuminata* L. against biofilm forming isolates from oral buccal cavity**" is submitted by **Anagha M B**, M.Sc. Botany (2021 - 2023), **Reg no: 210011009289** in partial fulfilment of the requirements for the award of the degree in Master of Science under the guidance of Dr. Reshmi G R. The work is carried out as an in-house project by the student.

  
Signature of HOD  
18/09/2023  
**Dr. M. ANILKUMAR, Ph.D**  
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3



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This is to certify that the Dissertation entitled "**Anti-biofilm and quorum quenching activity of *Cinnamomum verum* J. Presl and *Bauhinia acuminata* L. against biofilm forming isolates from oral buccal cavity**" submitted to Mahatma Gandhi University in partial fulfillment of the requirement for the award of degree of Master of science in Botany is a record of review work done by **Anagha M B**, M.Sc. Botany (2021 - 2023), **Reg no: 210011009289** during the period of her study under my supervision and guidance and that it has not previously formed the basis for the award of any degree or fellowship or similar titles of university.

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11/20/23

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20/9/23  
Aluva  
September, 2023

Reshmi G R  
18/09/23

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This is to certify that the Dissertation entitled **PHYTOTOXIC EFFECT OF MERCURY ON THE GERMINATION OF *Vigna radiata(L.)wilczek*** submitted to Mahatma Gandhi University in partial fulfilment of the requirement for the award of degree of Bachelor of science in Botany is a record of original work done by **DEVIKA K A, B.Sc. Botany (2020 – 2023)**, Reg no: 200021023851 during the period of her study under my supervision and guidance and that it has not previously formed the basis for the award of any degree or fellowship or similar titles of university.

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