



# UNION CHRISTIAN COLLEGE ALUVA-2



Criterion 3

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

3.2.1 Innovative Ecosystem

## 3.2 Innovation Ecosystem

### 3.2.1 Institution has created an eco-system for innovations, creation and transfer of knowledge supported by dedicated centers for research, entrepreneurship, Incubation etc.

The college has created an ecosystem for innovations, creation and transfer of knowledge. Our campus has introduced students to many eco-friendly ventures.

#### **Dedicated centres for research**

The college has nine Research Centres (Botany, Chemistry, Economics, English, History, Mathematics, Malayalam, Physics, Psychology and Zoology) dedicated to formal research and also to provide support to application and innovation. These centres conduct many events like seminars, Workshops and training programmes to disseminate knowledge on basic and advanced research methodology.

#### **Entrepreneurship and Innovation**

Innovation and Entrepreneurship Development Centre (IEDC) Unit of U. C College has been started on 5th December 2017. This supports students to attend training programmes, seminars, workshops and Ideafest conducted at our college and various colleges across the state and to promote entrepreneurship among students leading to successful entrepreneurship ventures.





**Inaugural Planning Meet 2<sup>nd</sup> December 2017**





- IEDC summit 2018 at Amal Jyothi Engineering College on 3<sup>rd</sup> November 2018.  
(8 students UG & PG participated)





- BT & SP students (7 nos) attended a two-day workshop at MES college Marampilly on December 13<sup>th</sup> and 14<sup>th</sup> 2018 organised by KSUM.



- The students (12 nos) of BSc BT and SP attended "Evoke 19" held at TKM Engineering College.

It was a 3-day event on 1st, 2nd and 3rd February 2019. They have arranged various events like project presentation, Ideathon, etc. and our students got an opportunity to exhibit their work.



- UG and PG students (12 nos) attended a Biotech Bootcamp at the Biotechnology Incubator at KRIBS BIONEST, KSUM on 15<sup>th</sup> and 16<sup>th</sup> July 2019.







- Our PG students (4 nos) attended Women Entrepreneur Summit at Kerala Startup Mission integrated startup hub, Kalamassery on 1<sup>st</sup> August 2019.



- A group of UG students attended the IEDC Summit 2019 at Sahardaya College of Engineering, Thissur on 19<sup>th</sup> October 2019. Team Biosciences





Team CME

## Indian Knowledge System (IKS)

Indian Knowledge Systems Have Been Given Increased Emphasis in Almost All Programs with Regard to Revised Syllabus.

Department of Botany



Nakshathravanam plants display in UCC-A centre for birth star plants

Inaugurated on April 12, 2023 by united board members Dr. Angela Wai Chung, Mr. Kevin Henderson and Mr. Lentson Amos for knowledge dissemination to public on Indian knowledge system.

27 North Star plants with QR enabled boards with correct nomenclature stating – distribution, synonyms and updated nomenclature as per APG 5 in powo.com











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## Dept. of History

### Course in MA History fourth semester

<p><b>Course Code: HYS00402</b></p> <p><b>KNOWLEDGE SYSTEMS IN PRE-MODERN INDIA</b></p> <p><b>Objectives</b> The course is designed to provide a theoretical outline on Indian knowledge systems and introduce learners to the vast world of indigenous knowledge systems. This will provide wider epistemological insights and acquaint students with the traditional knowledge form of Indian subcontinent in the most demystified manner.</p> <p><b>Outcome</b> Students will be develop a frame of mind tuned to a holistic understanding of India's pre-modern intellectual legacy. This helps to demystify the past and situate the present and future applications of traditional science and technology more sensibly. Traditional wisdom lost in modern times have been rediscovered using new theoretical tools and theoretical preliminaries are critical to current academics. The intellectual history of regions are vast and varied and learners will be able to appreciate the multiple trajectories in Indian knowledge systems.</p> <p><b>Module I</b> <b>Archaeology and Knowledge Systems:</b> Overview of Harappan Technology and Science- Indus Ceramics and Lapidary Technology- Copper/Bronze Metallurgy - Iron Technology in ancient India - Ceramic, Metal and Glass Technologies in early historic period - Indus and Brahmi paleography.</p> <p><b>Module II</b> <b>Texts and Knowledge systems:</b> Vedanga and specialized knowledge systems: Siksha, Kalpa, Nirukta, Chandas, Jyotisha, Vyakarana - Sulba Suktas- Vedanta - Nyaya- Arthashastra- Pali Canons and Buddhist Logic.</p> <p>PROGRAM STRUCTURE &amp; SYLLABUS PGCE/SDHS HISTORY: Page No-47</p>	<p><b>Module III</b> <b>Classical and Regional Knowledge Systems:</b> Astronomy and Mathematics - Bhaskara- Aryabhata-Varahamihira - Raja Jai Singh - Mathematical traditions of Kerala - Ayurveda: Classifications, Samhitas and Acaryas - Lexicography: Amara and Hemachandra - Natyasastra - Samarankana Sutradhara- Pre-industrial Navigation and Shipping on Western Coast of India.</p> <p><b>Module IV</b> <b>Foreign Impact on the Indian knowledge systems:</b> Persian Impact- Arab Contacts and Influence on Knowledge Systems - Fusion of Indian and West Asian Science and Technology under Delhi Sultanate and Mughals -Cognitive Encounters during the Colonial Phase- Spread of Indian Knowledge Systems to the West.</p> <p><b>Reading List</b> A.K. Bag, <i>History of Mathematics in Ancient and Medieval India</i>, Chaukhamba Orientalia, Varanasi, 1979. . A.K. Bag, <i>History of Technology in India</i>, 4 Vols, Indian National Science Academy, New</p>
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## First Year UG Students Near Pazhaziraja Museum





## Dept. of Malayalam

### Students Practicing Old Malayalam Script





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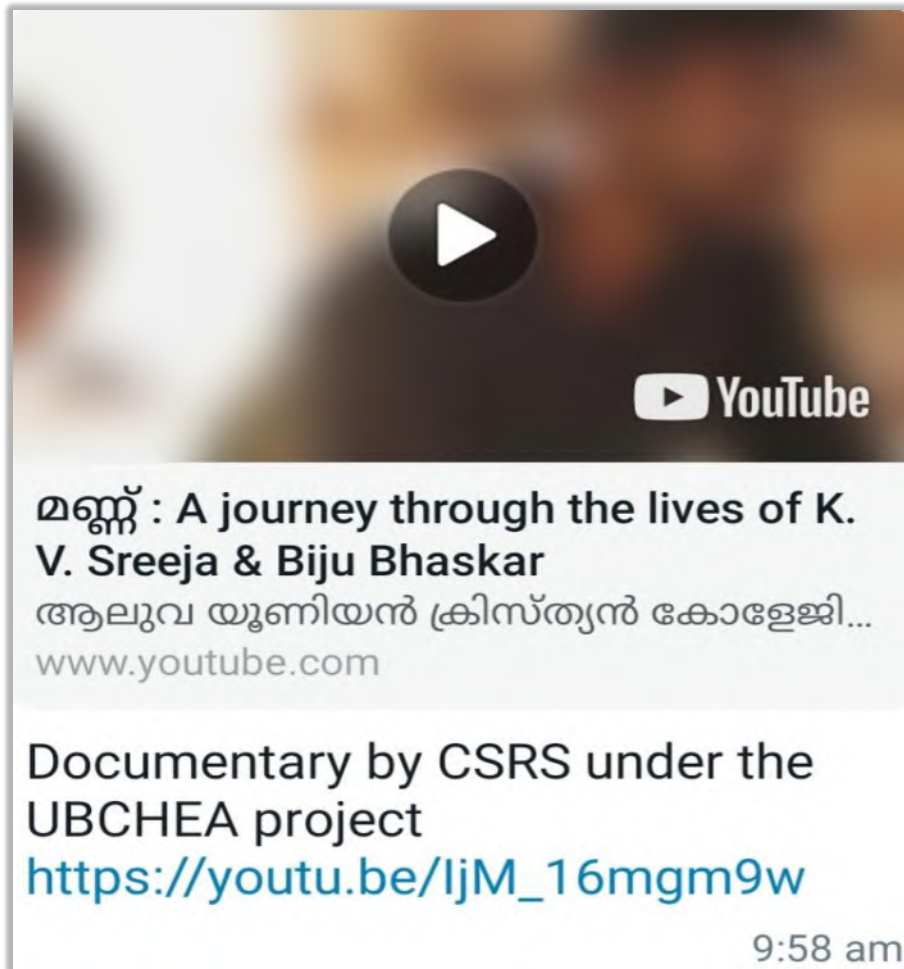
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Documentary Prepared by Students of CSRS, Union Christian College, 2020.





ഒറ്റവാക്കിന്റെ മുഴക്കങ്ങൾ  
Ottavakkinte Muzhakkangal

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## ഒറ്റവാക്കിന്റെ മുഴക്കങ്ങൾ ബദൽജീവിത മാതൃകകൾ

ഡോ. മിനി ആലീസ്  
നിനോ ബേബി

### സാപിയൻസ് ലിറ്ററേച്ചർ

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## Centre for the Study of Religion and Society (CSRS)

### Report of The Activities During 2016-17

- **Memorial Song service June 2016, Union Christian College**

CSRS in association with the College Choir organized a memorial song service in June 2016 to commemorate the contributions of the German missionary Volbrecht Nagel in bringing the Gospel to Kerala. Songs written by him in Malayalam are sung even today by all Christian denominations. During the service his songs were sung by Cochin Chorale, U.C. College Choir and Aluva Blind School Choir.

- **Project titled Understanding Alternative Lives: Equipping**

#### **Students for a Peaceful Existence**

The Centre in collaboration with United Board for Christian Higher Education in Asia (UBCHEA) carried out a project titled *Understanding Alternative Lives: Equipping Students for a Peaceful Existence* in July 2016 which involved a series of interviews, publication of a book and making of a documentary on personalities who have charted a unique path of their own, oblivious to the concerns of mainstream society. The project, lasting three years, attempts to serve as a platform for the students at large by drawing insights from sixteen unique personalities and their contribution to workspace, in shifting their perception about life's purpose as seekers of Truth and Peace in a new way. The chosen personalities with whom students interacted have carved a niche for themselves in their respective fields upholding integrity, honesty and commitment. This initiative is the first of its kind in codifying alternative lives in Kerala, though individual case studies are aplenty.

- **Orientation for Project Co-ordinators. 19<sup>th</sup> August 2016, Union Christian College**

Arranged a half-day orientation class for the project co-ordinators on the theme “Alternative Lives” by Sri Manoj Chandran, Editor in chief, Manorama News Channel. The meeting also prepared a draft on the various activities of the project to be scheduled and also the identification of personalities to be interviewed.

- **Third T.O Abdulla Endowment Lecture. 30<sup>th</sup> August, 2016, Union Christian College**

The lecture titled Alternative Live: Multiple Narratives was delivered by Prof. Dr. Sunil P. Ilayadom.







- **Fourth T.O Abdulla Endowment lecture.30<sup>th</sup> September,2016, Union Christian College**

The lecture titled Alternative Lives was rendered by media critic and actor Sri V.K. Sreeraman.





- **Three-day workshop on the project theme conceptualization and interview skills, 4<sup>th</sup> - 6<sup>th</sup> November, 2016, AELI Hills, Aluva**

Workshop was organized to make students understand the different dimensions of the concept and to improve their research and interviewing skills.

- Dr Anilkumar M, Assistant Professor, Department of Botany, Union Christian College, Aluva helped the students to identify personalities leading alternative lives in the fields of life science and ecology.
- Sri. Lovewin K Cherian, Programme Co-ordinator, Student Christian Movement, Kerala region aided students in identifying unique qualities in shaping an individual.
- Sri. Manoj Chandran (Manorama News Channel), Smt. Sandhya P.P. (Media One Channel), Sri. Johny Lukose, News Director, Manorama News and Smt. Dhanya K. Vilayil, Interior Magazine engaged sessions on how to improve interview skills and preparations and concerns while conducting interviews.
- Renowned writers Dr. George K Alex, Associate Professor, Department of Political Science, St Thomas College, Kozhencherry and Dr. Muse Mary 20George, Associate Professor, Department of Malayalam, Union Christian College, Aluva rendered thematic presentation of the concept.
- Conducted a mock interview under the guidance of a professional journalist

Immediately after the workshop students conducted a mock interview with Prof. Rev. Thomas John, Manager, Union Christian College, Aluva. The evaluation done by Ms. Dhanya K. Vilayil (Journalist, Interior Magazine) gave an impetus to improve their skills.













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## ● Mock Interview 1

**13<sup>th</sup> & 14<sup>th</sup> December 2016, Union Christian College**

Before meeting each alternative life, it was decided by the project team that there would be a mock interview to build the confidence of the students and to refine their thoughts. When Daya bai, a social activist from Kerala working for the upliftment of tribals in Central India was chosen to be interviewed first, the students did a detailed presentation on Daya bai and her activities. Two sessions were arranged to evolve concrete questions to pose in the interview & a mock interview cum role play was conducted. Ms. Liji Lawrence, Assistant Professor, Department of Economics played the role of Daya bai.

## ● Interview 1: Dayabai.

**15<sup>th</sup> December 2016, Union Christian College**

A six-hour long interview with Daya bai spanning over three sessions was conducted at the premises of St Joseph's Pontifical Seminary, Mangalappuzha, Aluva and Union Christian College, Aluva. The interview covered her childhood, transformation period, current working pattern and views on various social issues. Sri Ram, a film maker who assisted Daya bai during the interview also gave necessary inputs to students in understanding the technical know-how on documentation.









## • Mock interview 2

### 18<sup>th</sup> January 2017, Union Christian College

The second personality chosen was Fr. Bobby Jose Kattikkad, a Roman Catholic priest in Kerala, known for his spiritual teachings and has to his credit nine books. The group of students who were entrusted to interview Fr. Bobby did a thorough reading of his works and writings. Sri. Midhun Murali, alumni of the College and an ardent follower of the priest played the role of Fr. Bobby Jose during the mock interview

## • Mock interview 3.

### 19<sup>th</sup> January 2017, Union Christian College

Smt. A.K. Rajamma, an ardent follower of Mahatma Gandhi, Acharya Vinoba Bhave and Sree Narayana Guru Swamikal was the next alternative life chosen for the interview. Dr. Muse Mary George, Associate Professor & Head of the Department of Malayalam, Union Christian, College played the role of Smt. A.K. Rajamma during the mock interview and gave necessary directions for the team.

## ● Interview 2: Fr. Bobby Jose Kattikkad

**21<sup>st</sup> January 2017, Maramon Retreat Centre, Kozhenchery.**

The meeting and the interview session with Fr. Bobby was arranged at Maramon Retreat Centre, Kozhenchery, Kerala on January 21, 2017. During the session Fr. Bobby narrated the meaning and qualities of an Organic man, a concept coined by well-known Malayalam writer Anand (Sri. P. Sachidanandan). His narration was followed by a three-hour long interview.





- **Visit to Anchappam.**  
**21<sup>st</sup> January 2017, Kozhenchery.**

The project team after the interview with Fr. Bobby Jose also visited Anchappam, a restaurant initiative by the priest (Fr. Bobby Jose Kattikkad) in Kozhenchery unique for its humanitarian concern and service. The restaurant follows a unique social service model; anyone who is hungry can visit here and no one is bothered whether you can pay for it or not. In the evening the place turns into a library, where instead of food, books are served to cater your intellectual thirst. Associating with Kerala Students Christian Movement the project team extended their hand in serving and feeding those who visited the restaurant for lunch.





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- **Interview 3: A. K. Rajamma.**  
**22<sup>nd</sup> January 2017, Trivandrum**

The project team visited Vinobhaniketan at Trivandrum, to meet Smt. A.K. Rajamma. She was the founder of the institution which was the seat of Bhoodan (Land Gift) movement in Kerala run on the Gandhian principles. The interview with the ninety-year-old lady was an exhilarating experience for the team. A walk around the Vinobaniketan campus and its Museum provided an opportunity to comprehend the strong will of Smt. Rajamma to adhere to the ideals of Truth, Non – Violence and Compassion to all living beings on the planet – Earth.





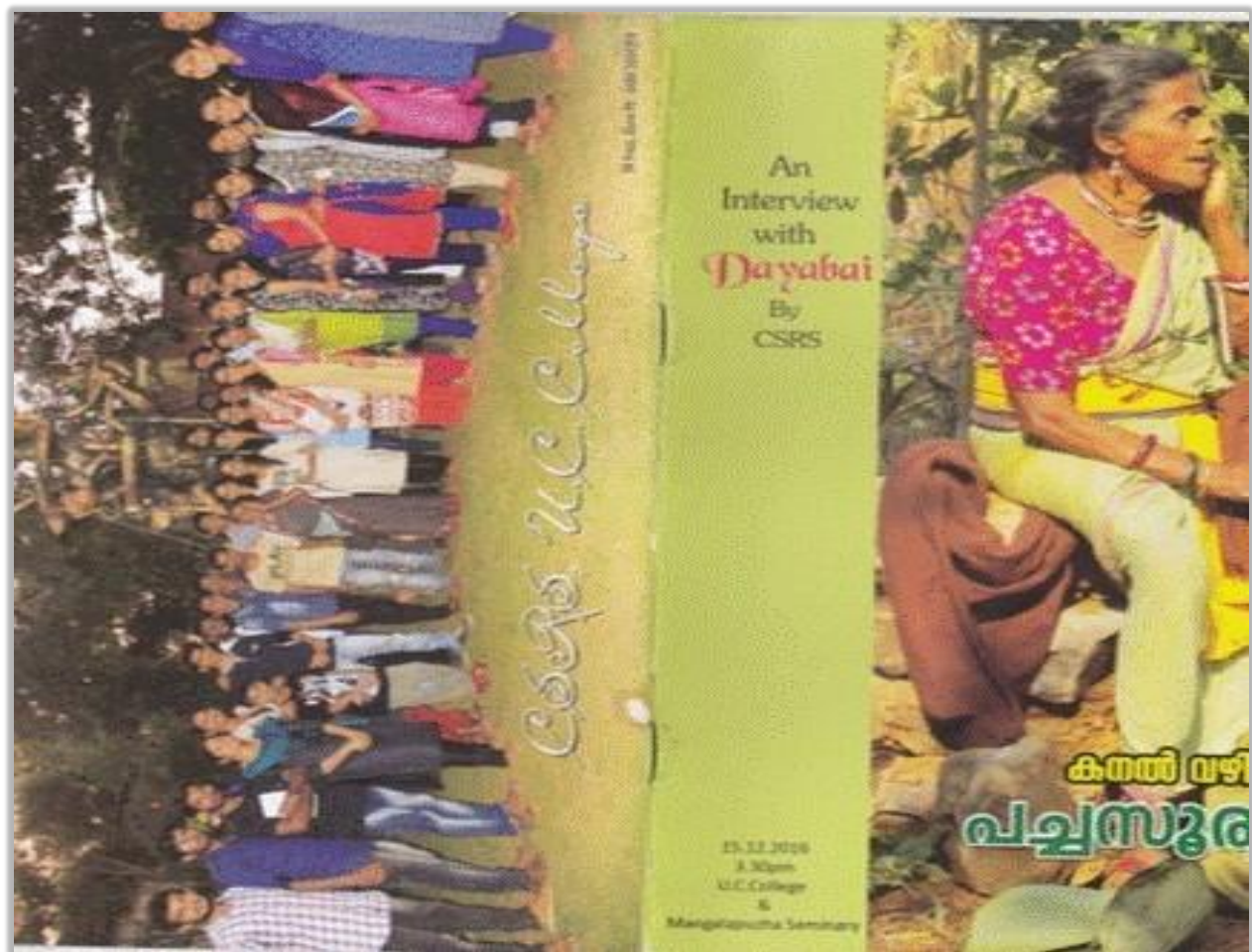




- Little magazine release by Dayabai.

## 22<sup>nd</sup> February 2017, Union Christian College

A little magazine carrying the experiences of students with Dayabai in the form of articles, notes, poems, drawing and reviews on her book and documentary was released on February 22, 2017 by Mr. Jettish Sivadas, Research scholar in Malayalam, Union Christian College.







- **Visit to Akasapparavakal. 8<sup>th</sup> April, Malayattoor**

The next personalities identified for the interview was a couple – Sri. Shaju and Smt. Shiji. They were chosen for their unique way of caring the inmates of three centres of Akasapparavakal a rehabilitation home for the least and the lost in Bangalore. A preliminary visit to one of its branches in Malayattoor, Kerala was made on April 8, 2017 to understand the functioning of the Centre and to gather information about the couple.

- **Session on Music therapy. 18<sup>th</sup> April 2017, Union Christian, College**

The project team decided to present a music performance for the inmates at the Akasapparavakal in Bangalore. In view of this, Amal T. Anoop, MSc Psychology student and one of the team members took a session on understanding music therapy on April 18, 2017 followed by rehearsals.

- **Interview 4: Sri. Shaju and Smt.**

**Shiji. 19<sup>th</sup> April 2017, Bangalore**

Three days' visit to the Bangalore centres of Akasapparavakal was an entirely different experience for the team. Apart from musical performance the team also got an opportunity to prepare lunch for the inmates. The interview with Sri. Shaju and Smt. Shiji, provided new insights on a life completely different from conventional ways of living.







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- **Interview 5: Sri. C.K. Saseendran,  
5<sup>th</sup> May 2017, Govt. Guest House, Aluva**

The fifth interview under the project was with Sri.C.K.Saseendran, people's representative from Kalpetta in Kerala's Legislative Assembly. A man of simple living, this down to earth Indian Politician is facing threats from Maoists because of his enthusiasm in solving issues of the tribal people in Wayanad. The interview was an informative one as the politician waxed eloquent on the various projects planned for the upliftment of the region.



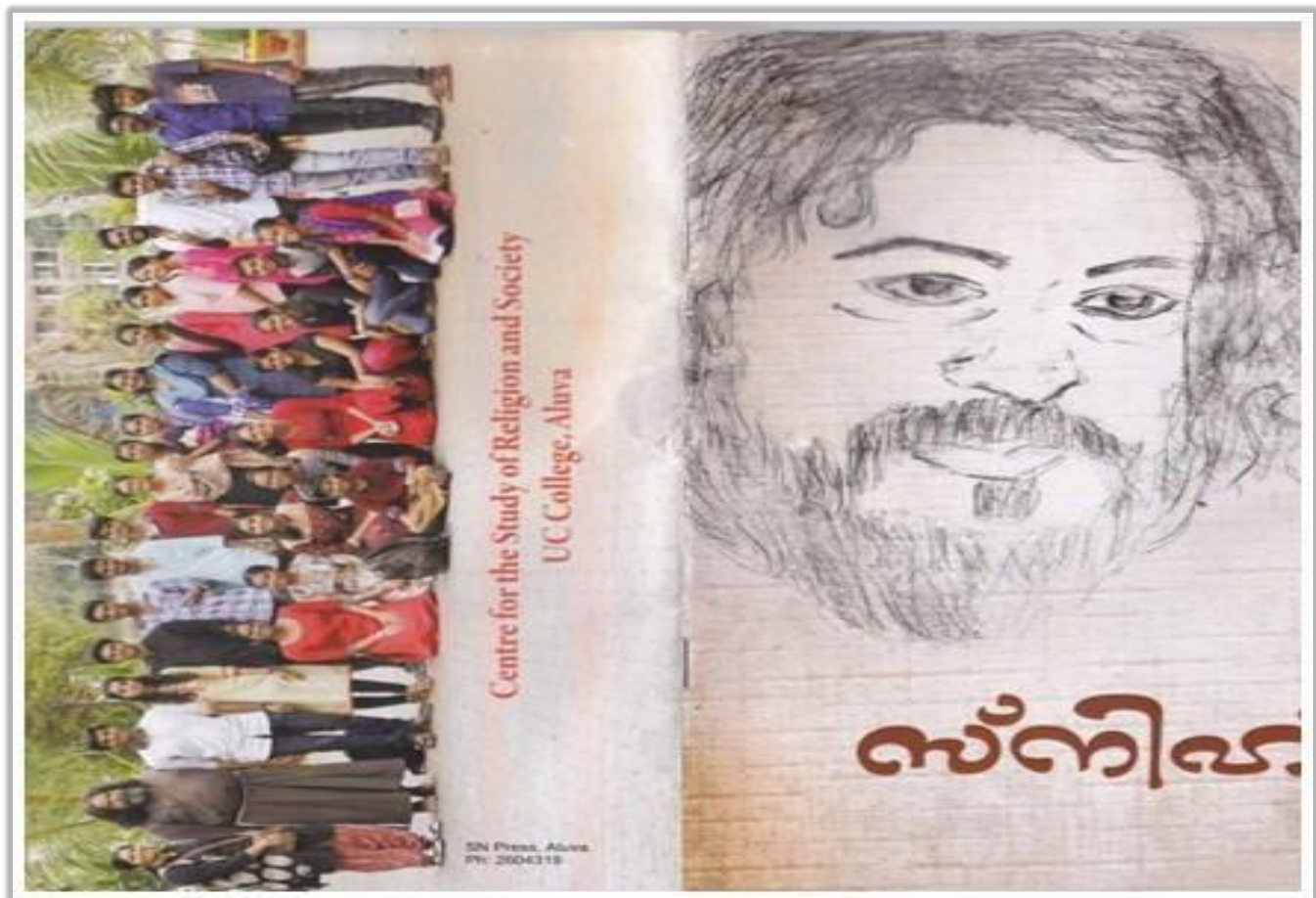


## Report of The Activities During 2017-18



● **Little magazine release on Fr. Bobby Jose Kattikkad & Smt. A.K. Rajamma, 23<sup>rd</sup> June 2017, Union Christian College**

The two little magazines, 'Snih' and 'Ka Ka', based on the interviews with Fr. Bobby Jose Kattikkad & Smt. A.K. Rajamma respectively was released on June 23, 2017. Sri. Liboose, Assistant Professor, Department of Malayalam, St. Thomas College, Kozhencherry and Dr. Anila E.I., Associate Professor, Department of Physics, U.C. College released the mag





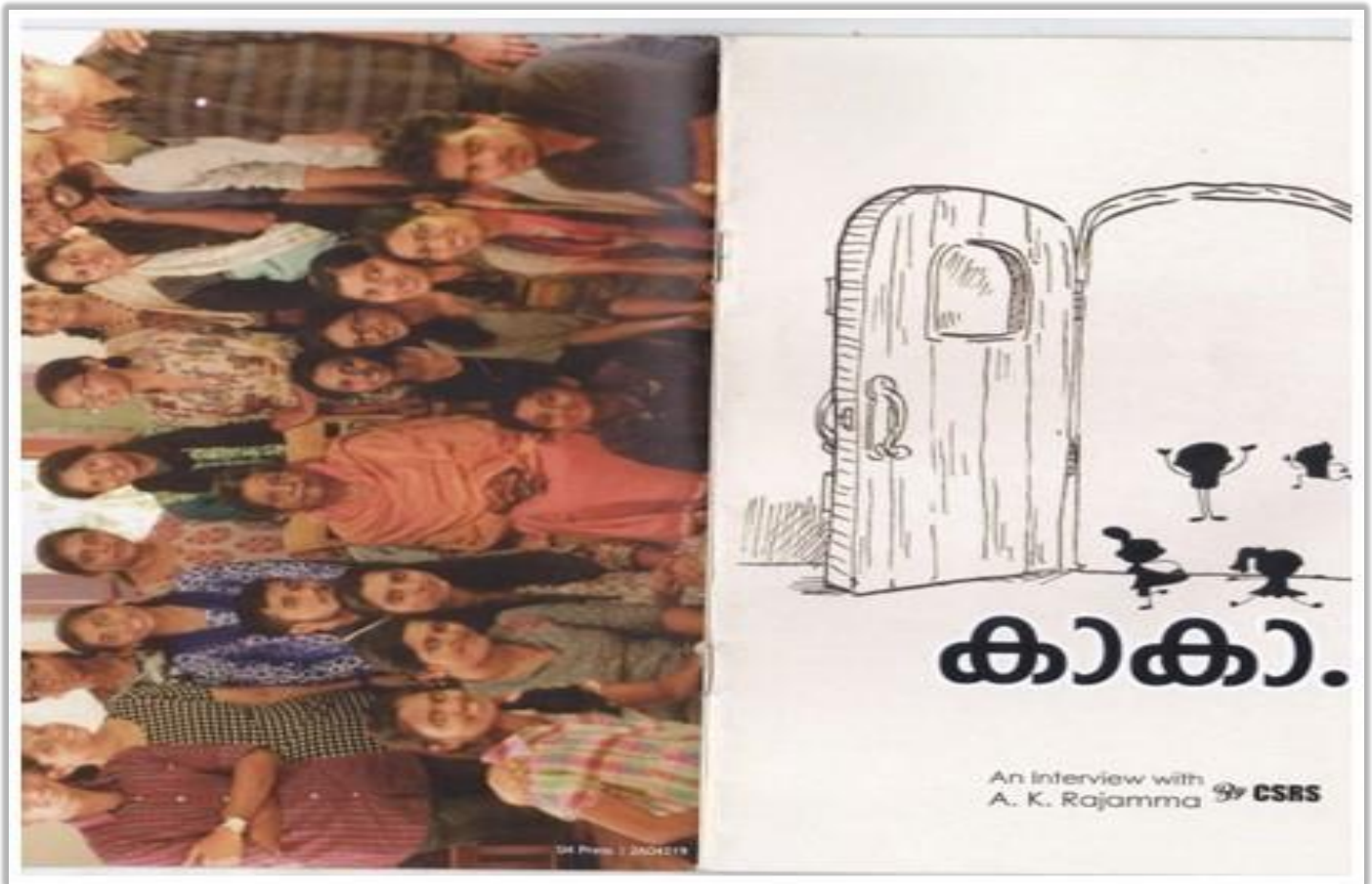
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- **Interview 6: Smt. Sreeja Arangottukara. 9<sup>th</sup> July 2017, Arangottukara, Thrissur**

Sreeja Arangottukara, an income tax officer by profession was chosen the next personality to be interviewed. A popular theatre activist, Sreeja is an organic farmer cultivating rice, vegetables, cash crops and other items on nearly 25 acres of land at Arangottukara, in Thrissur district as well. Prior to the interview with Smt. Sreeja on July 9, 2017 at Arangottukara, a farm- based training session on organic farming and identification of varieties of paddy seedlings was arranged for the project team comprising CSRS volunteers and Botany students of the Union Christian College. The three-hour long interview was profound and inspiring for the students as Smt. Sreeja narrated her experiences and the multiple roles she has undertaken.











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- **Mock Interview 4. 18<sup>th</sup> July 2017, Union Christian College**

Personalities so far interviewed were largely inclined to serve the oppressed or the needy. For the seventh interview, the project team chose Sri. Santhosh George Kulangara, Director, Safari Channel, an expedition channel in Malayalam. Unlike the earlier personalities selected, he is a person who is passionately following his dreams of travelling around the world and a person who has instilled a culture of travelling in the minds of Keralites. Dr. Sunil Abraham Thomas, Assistant Professor and Head of the Department of Economics, played the role of Sri. Santhosh George Kulangara during the mock interview and shared his feedback.

- **Fifth T.O Abdulla Endowment lecture.19<sup>th</sup> July, 2017, Union Christian College**  
**Fifth T.O Abdulla Endowment lecture was delivered by Sri. Santhosh George Kulangara on 19<sup>th</sup> July 2017**



- **Interview 7: Sri. Santhosh George Kulangara.**  
**19<sup>th</sup> July 2017, Union Christian College**





Sri. Santhosh George Kulangara was invited to the College to deliver an inspirational talk on July 19, 2017. He addressed the whole college and narrated how successfully he accomplished his childhood dreams of owning a television channel and travelling. He also shared his views on the need for a change in the present Indian educational system which fails in providing technical skills for the students to survive in the world. The two-hour long interview that followed the talk further widened the outlook of the team towards life.





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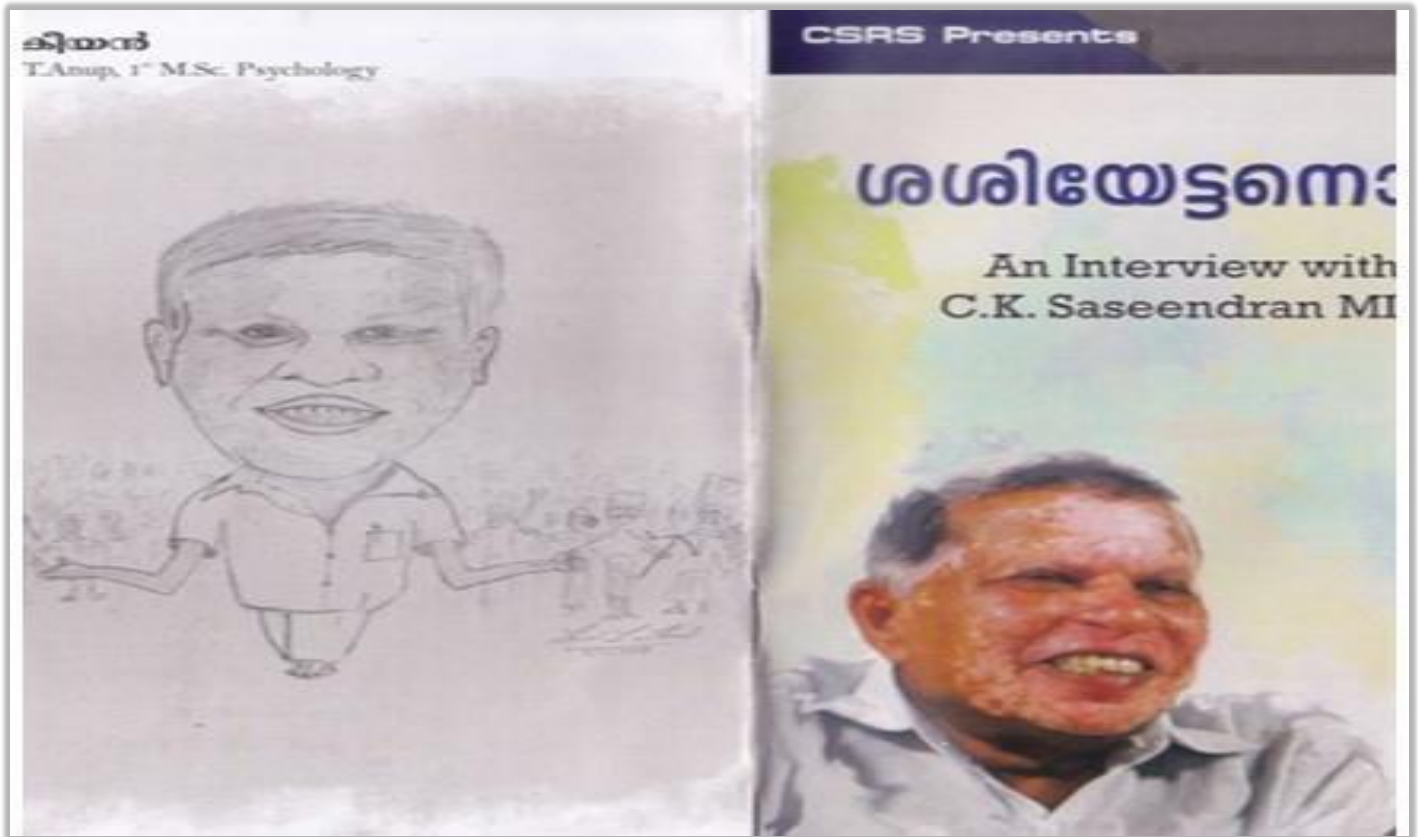




- Little magazine release on Sri C.K. Saseendran. 19<sup>th</sup>

## July 2017, Union Christian College

‘Sasiyettanodoppam’ the little magazine on Sri. C.K. Saseendran was released on July 19, 2017 by the well-known traveler Sri. Santhosh George Kulangara.



- **Interview 8: Sri. N.V. Thomas. 12<sup>th</sup> September 2017, Vadakkencherry**

Sri. N.V. Thomas is a Gulf returnee who has been actively involved in bringing about innovations in the field of Telecommunication in the Gulf region. On returning to Kerala he initiated the creation of an eco-friendly organic farm – Basil farms – of around 100 acres in Vadakkencherry. He has been able to carve a niche for himself in organic farming incorporating his technical expertise without in anyway disturbing the natural eco system. A day at his organic farm was a rewarding experience for the team.







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- **Interview 9: Dr. Haripriya Nampoothiri. 14<sup>th</sup>**

**September 2017, Union Christian College**

Dr. Haripriya Nampoothiri, a teacher of chemistry turned into a Kathakali performer, was the ninth personality opted for interview. She has a doctoral degree in Kathakali. Her one-hour demonstration session prior to the interview was an enriching experience. Students who are interested in fine arts and culture were given an opportunity to interact with Smt. Haripriya.







- **Interview 10: Sri. James Joseph. 15<sup>th</sup> September 2017, Union Christian, College**

Sri. James Joseph is a corporate turned entrepreneur who has carved a niche for himself in the taste map of the world. He popularized Jackfruit by making it readily available round the year by packing it in a freeze-dried form. Jackfruit365 (the brand name of his product) and Professional Bharati (an online platform for NRI professionals to relocate to their nativeplaces) are two innovative ventures of this ex- Microsoft director. The interview that followed the talk further widened the outlook of the team towards a healthy life by focusing on the health benefits of raw jackfruit. The departments of Economics and MBA joined hands with the CSRS team in making the session interactive and lively.





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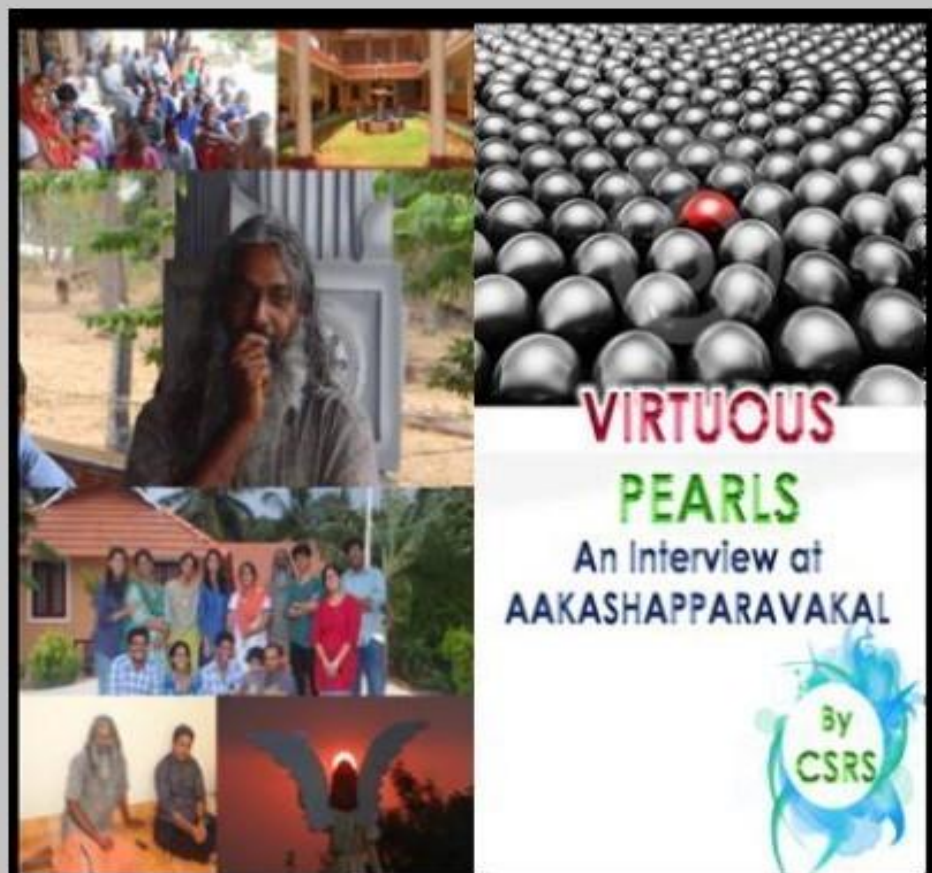




- **Little magazine release on Sri Shaju & Smt Shiji. 15<sup>th</sup>**

**September 2017, Union Christian College**

Virtuous Pearls, the little magazine on Sri Shaju & Smt Shiji was released on September 15, 2017 by the Managing Director of Jackfruit365, Sri. James Joseph.





- **Lecture on Third Gender.**

**4<sup>th</sup> December 2017, Union Christian College**

Organised a lecture in the college campus on December 4, 2017 by Prof. Cheri Jacob, Assistant Professor, Dept. of English, Union Christian College, Aluva on third gender. By quoting several narratives he made his talk lively. The lecture was relevant especially as the government has been taking various initiatives recently towards the upliftment of the Third Gender. He also introduced a book titled Juxtapose: Sever Stories of Adoption by Reena Cherian.

- **Orientation for Project Co-ordinators. 14<sup>th</sup> December 2017, Union Christian College**

Arranged a half day orientation class for the project co-ordinators in the campus to familiarize the various steps in Documentary film making. Sri Manoj Chandran, Editor in chief, Manorama News Channel led the session on December 14, 2017 followed by draft preparations for the forthcoming Workshop on Documentary making.

- **Three Mock interviews.**

**16<sup>th</sup> - 18<sup>th</sup> January, 2018, Union Christian College**

Three mock interviews were arranged in the college campus from January 16-18, 2018 to equip the team for the next three interviews in Kollam and Trivandrum. Dr. Anilkumar, Dept. of Botany played the role of Sri G Sankar, a green architect renowned for constructing mud houses. Mr. Neeraj George Baby, International Para Badminton Player & an alumnus played the role of Sri Devesh Mahadevan, differently abled (Brittle Bone disease) who fought all the odds to become a bank officer. Amal T Anoop, our MSc Psychology student played the role of Prof R.V.G. Menon, Educationalist



and Scientist. Students were grouped into three and each group was assigned to give a presentation on each personality.



Amal T Anoop, Senior student during a mock interview session



Mock interview: Mr Neeraj George Baby, International Para Badminton Player & Alumnus

- **Interview 11: Sri Devesh Mahadevan. 21<sup>st</sup>**

**January 2018, Kollam**

The Eleventh interview was conducted on January 21, 2018 in Kollam, South Kerala with Sri Devesh Mahadevan, a differently abled person who is by birth suffering from Brittle bone disease. His determination and the support of his parents elevated him to achieve a job in the banking sector. The interaction with him was highly inspiring as it will lead the team in confronting the challenges of life.







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CSRS team with Mr Devesh Mahadevan

- **Interview 12: Prof. Dr. R.V.G. Menon.**

**22<sup>nd</sup> January 2018, Thiruvananthapuram**

Our next interview in the series was with Prof. Dr. R.V.G. Menon at C.Achuta Menon Center and Library, Thiruvananthapuram on January 22, 2018. A teacher by profession, Prof. Menon has taught in various engineering colleges in Kerala and has served as the director of both ANERT (Agency for Non-conventional Energy and Rural Technology) and IRTC (Integrated Rural Technology Centre). He was instrumental in popularizing science among laymen. His role in inculcating scientific temper among young people has been much appreciated.





- **Interview 13: Sri G Sankar.**

**22<sup>nd</sup> January 2018, Thiruvananthapuram**

For the thirteenth interview the team chose Sri G Sankar who is a proponent of green architecture, a believer in Gandhian economics and an admirer of Sylvia Plath's poetry. He advocates the use of locally available materials, sustainability, eco-friendliness and cost effectiveness in construction. The Nation honored him with the title Padmasree. The team interviewed him at his home Siddhartha on January 22, 2018.



Mr Sankar explaining the uniqueness of his abode, Siddhartha, the mud house









- **Three-day Documentary Workshop. 14<sup>th</sup> -**

**18<sup>th</sup> February 2018, Union Christian**

**College**

To make students understand and explore the various aspects of documentary making and imbibe a visual culture, a three-day workshop was organized in the college campus from February 14<sup>th</sup> – 18<sup>th</sup>, 2018. Prior to this workshop three introductory sessions were arranged on February 14<sup>th</sup> and 15<sup>th</sup>, 2018. Participants of this camp included the CSRS team and the students who are interested in film making. Dr. George K. Alex, Assistant Professor, Department of Political Science, St. Thomas College, Kozhencherry rendered thematic presentation of the concept of Alternative Lives. Mr Sanjayan Markose, an alumnus and film maker engaged a session on documentary making lessons for beginners. Rev. Fr. Pathrose, wild life photographer engaged a session on photography. Mr. Sanju Surendran, Film maker made an insightful lecture on the techniques on documentary making. Dr Mathew A. Varghese, Scholar, IAS, Shimlascreened the documentary Digging into Adani and moderated a discussion thereafter. Prof Cheri Jacob, Assistant Professor, Department of English led a session on the Themes and Issues in Documentaries. Mr. Abhilash Vijayan, Film maker detailed the participants on direction and script writing in documentary films. Mr. Manesh Madhavan, Cinematographer shared his experience behind the camera and guidelines for the careful handling of camera. Mr Biju Sukumaran, Editor engaged a session on basics to film editing. Mr. Manoj Chandran, Manorama News engaged a session on Society and Documentary. On the final day of the camp, the participants with the support of the resource persons produced a one-minute short film on our college.











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- **Interaction with Sri Shoukath.**

**11<sup>th</sup> April 2018, Karamada, Coimbatore**

The interaction with the Malayalam writer Sri Shoukath was an enriching experience. His philosophy of life and the mystic charm with which he narrated his life experiences – especially his encounter with Guru Nityachaithanya Yathi, his mentor, philosopher and guide, transported the team members into the realm of spirituality. The team interacted with him at his place near Coimbatore on April 11, 2018.

- **Interview 14: Sri Biju Bhaskar.**

**12<sup>th</sup> April 2018, Thiruvannamali, Tamil Nadu**

The 14<sup>th</sup> interview of the project was held in Thiruvannamali in Tamil Nadu with Sri Biju Bhaskar on April 12, 2018. Biju Bhaskar is a natural builder and architect who strongly believed that education is incomplete without travel. He encouraged people to use natural materials without altering which minimizes the effect on nature and thus make us live in harmony with nature, just like a bird nesting on a tree. He also insisted people to have their own hand sculpted homes. The interaction with him at his Earth home Vriksha was an enchanting experience.



Mr Biju's assistants explaining their activities





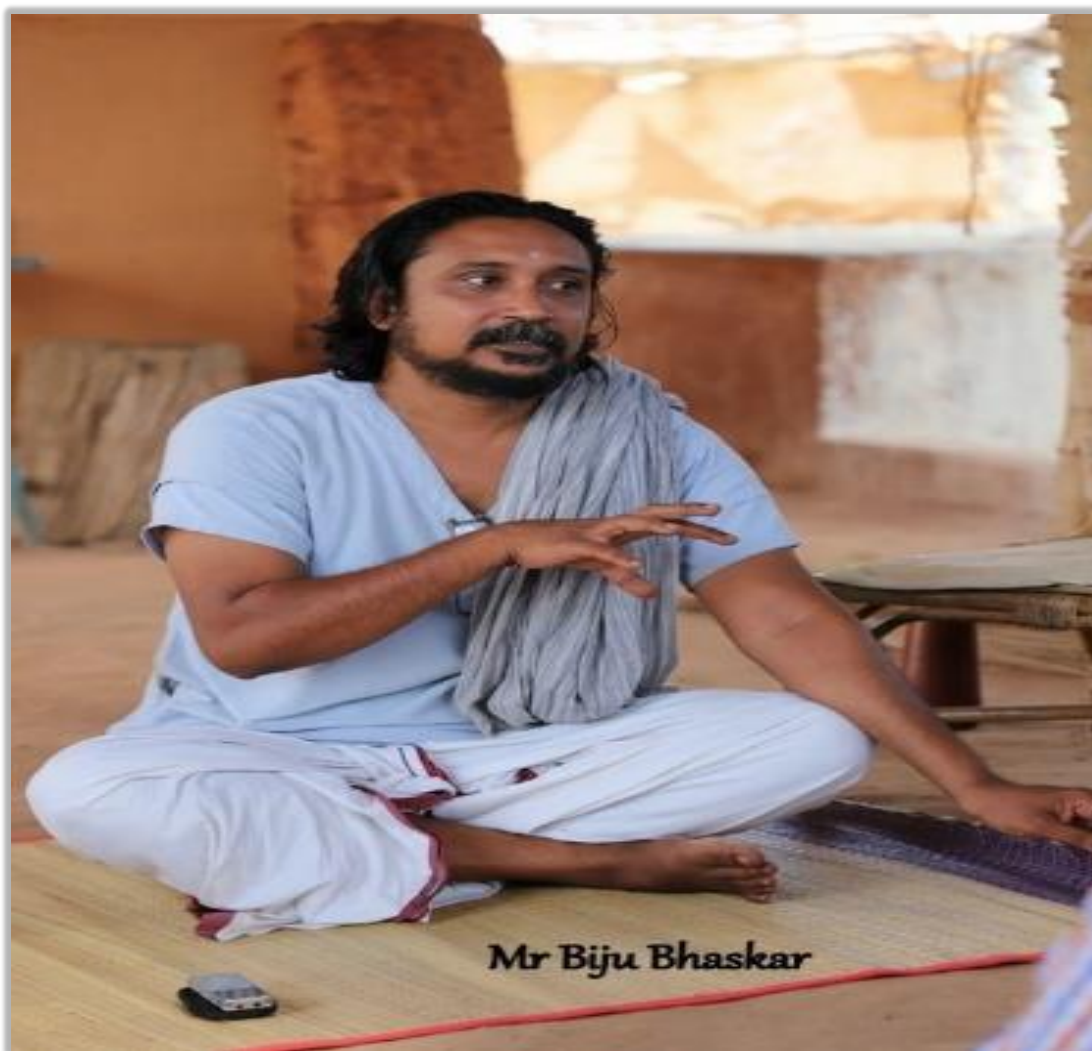
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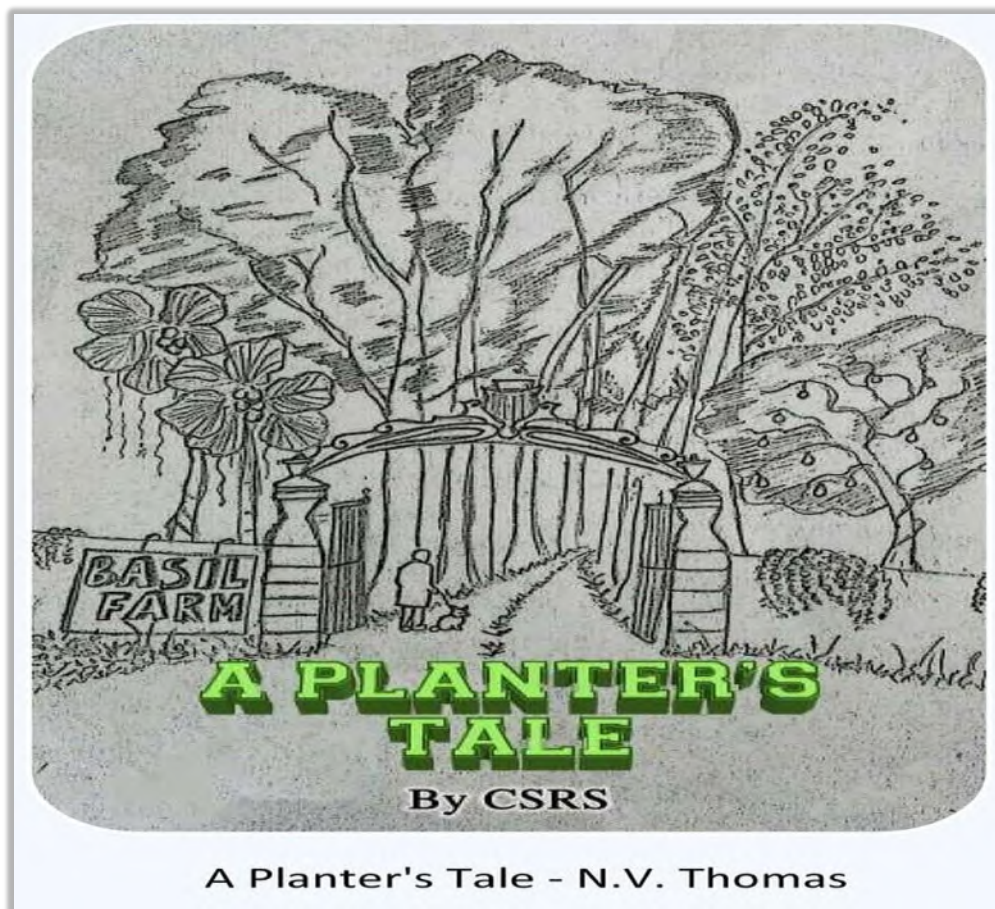
Mr Biju Bhaskar



- **Published little magazines.**

## **February – June 2018, Union Christian College**

Ten little magazines carrying the experiences of students with various personalities interviewed in the form of articles, notes, poems, drawing and reviews have been published by the end of June 2018.











- **Documentary Shooting: Smt. Sreeja.**

**13<sup>th</sup> January 2019, Aarangottukara, Trissur**

Another major activity under the project was the making of a documentary based on the interviews done. The first part of the shooting covering the activities of Smt Sreeja, an income tax officer cum theater activist and organic farmer was done at her native place. The team could capture the gaiety and spirit of harvest coupled with the richness of art and folklore experienced by locals including children. Team also visited her initiative named Krishi Padasala exclusively for native children to understand the sustainable methods of organic farming, preservation of paddy seeds and inculcating in them creativity and promoting their artistic endeavors. A performance of the play “Idanilangal” led by Smt Sreeja in Trissur was documented by the team so as to showcase her engagement with theatre.



- **Documentary Shooting: Sri Biju Bhaskar.**

**20<sup>th</sup> January 2019, Thiruvannamalai, TamilNadu**

The team conducted the second part of the three- d a y shoot at Thiruvannamalai with Sri Biju Bhaskar, architect and natural builder specializing in the construction of mud 9houses with a view of rejuvenating the traditional elements of Indian architecture and design.

- **Interview 15: Sri V. K. Sreeraman.**

**28<sup>th</sup> April 2019, Trissur**

The fifteenth interviewee in the series was V.K. Sreeraman, renowned actor, writer and social critic who has been instrumental in mainstreaming many alternative lives through his writings and interventions in the visual media.







## Report of the Activities during 2018-19

- **Interview 16: Dr. N. Vijayakumar.**

**17<sup>th</sup> June 2019, Aluva**

The sixteenth interviewee was Dr. N. Vijayakumar, a medical practitioner and social worker who played a critical role in setting up a Blood Bank in Aluva which remains a model for other such centres. His work has been instrumental in saving many lives and has had positive influence on the lives of dialysis patients from underprivileged sections.







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## Report of the Activities during 2019-20

- **Sixth T.O Abdulla Endowment lecture.**  
**30<sup>th</sup> August, 2016, Union Christian College**

Sixth T.O Abdulla Endowment lecture was delivered by Sri. Binoy Viswam, Member of Rajya Sabha on 30<sup>th</sup> August 2020.





- **Book – Documentary Release**

**25<sup>th</sup> February 2020, Union Christian College.**

Sri. Binoy Viswam, Member of Rajya Sabha released Compilation of sixteen interviews in the form of an edited book named Ottavakkinte Muzhakkangal: Badaljeevitha Matrukakal and Documentary named Mannu based on the lives of Sri K.V. Sreeja & Sri Biju Bhaskar.











## • Summary of the Project

The Centre in collaboration with United Board for Christian Higher Education in Asia (UBCHEA) carried out a project titled *Understanding Alternative Lives: Equipping Students for a Peaceful Existence* in 2016 which involved a series of interviews, publication of a book and making of a documentary on personalities who have charted a unique path of their own, oblivious to the concerns of mainstream society. The project, lasting three years, attempts to serve as a platform for the students at large by drawing insights from sixteen unique personalities and their contribution to workspace, in shifting their perception about life's purpose as seekers of Truth and Peace in a new way. The chosen personalities with whom students interacted have carved a niche for themselves in their respective fields upholding integrity, honesty and commitment. This initiative is the first of its kind in codifying alternative lives in Kerala, though individual case studies are aplenty.

### ➤ Personalities interviewed

Dayabai (tribal activist), Fr Bobby Jose Kattikkadu (Spiritual guru), Smt

A.K. Rajamma, (Gandhian), Sri. Shaju Thomas (Social worker), Sri C.K. Saseendran MLA (Politician), Sri Santhosh George Kulangara (Traveller), Smt K.V. Sreeja (Theatre artist & Organic farmer), Dr. Haripriya Namboothiri (Kathakali artist), Sri Thomas Neernakudi (NRI turned Planter), Sri James Joseph (Entrepreneur Jackfruit 365), Sri Devesh Mahadev (Differently abled Banker), Sri G Sankar (People's Architect who founded Habitat), Prof R.V.G. Menon (Scientist, Educationalist & Public intellectual), Sri Biju Bhaskar (Green Architect), Sri V.K. Sreeraman (Critic, Writer & Artist) & Dr N Vijayakumar (Pediatrician & Hematologist).

## Activities Under the Project:

- Two workshops – 1) For Theme conceptualization (Alternative lives) & Basic interview skills, 2) Basics of Documentary making
- Mock interviews before each interview and presentation on each chosen person
- Sixteen Interviews
- Little magazines after each interview to share their experience through creative skills
- Visits to places such as Anjappam Kozhencherry, Vinobha Nikethan, Arunachalam Hills, Auro Ville Pondicherry, Akasapparavakal Bangalore, Arangottukara
- Compilation of sixteen interviews in the form of an edited book named Ottavakkinte Muzhakkangal: Badaljeevitha Matrukakal
- Making of a documentary named *Mannu* based on the lives of Sri K.V. Sreeja & Sri Biju Bhaskar

### • Goals Accomplished

The students embark on a journey of self-realization through the field experience they acquire by acquainting themselves to these personalities. The interactions have definitely broadened their horizons and opened up numerous possibilities for them in creating communal partnerships and peace building in the society.



## Department of English

### Copy of Syllabus

BROCKHAMPTON UNIVERSITY & PARTNERS 2014-2015: NEW EXAMINATIONS 2014-2015	
2. <b>Second Quarter Book: History of Sanskrit Poetry</b> (Sanskrit: Pancha 1888)	
3. <b>Third Quarter Book: History of Sanskrit Poetry</b> (Sanskrit: Pancha 1888)	
4. <b>Fourth Quarter Book: History of Sanskrit Poetry</b> (Sanskrit: Pancha 1888)	
5. <b>Fifth Quarter Book: History of Sanskrit Poetry</b> (Sanskrit: Pancha 1888)	
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100. <b>Hundredth Quarter Book: History of Sanskrit Poetry</b> (Sanskrit: Pancha 1888)	



UNION CHRISTIAN COLLEGE, ALUVA  
DEPARTMENT OF ENGLISH

**M & Mathew Endowment Centenary  
Webinar Series**

**Dravida Kavyamimamsa:  
Through Contemporary Lens**

**A Talk by Dr Prahesh TP**

**28 April 2021, 10.30 am**

Since 2004, Dr Prahesh has been doing research and writing on Dravida Kavyamimamsa. He has five publications in the area and has presented papers at various national seminars. His MPhil and doctoral theses attempt to provide a postmodern exposition of the *Tinai* concept in *Tolkapiyyam*. The talk will be in Malayalam.

Join Zoom Meeting  
<https://zoom.us/j/96342149204?pwd=a3NFQVh6aGJkL0ZtTElTemJ3b1NoZz09>  
**Meeting ID: 963 4214 9204 Passcode: 812818**  
No registration. Max. participants-100; For further details Whatsapp 8281445920  
Faculty Co-ordinator: Akhila Narayanan, Assistant Professor, Dept of English

A special lecture was held on Dravida Kavyamimamsa for PG students to introduce students to Sangam Poetics.

## Nityadarsanam

Nitya Chaitanya Yati (1924-1999) was a philosopher, psychologist, author and poet. His writings have made him one of the world's leading exponents of Advaita Vedanta, including how it dovetails with modern scientific discoveries. Guru behaves and reacts as a person at the transactional level, and there he lays his emphasis on being fully committed to his unlimited liability for the welfare of all. In that context, service is his watchword. He is a friend of the lone, the lost, and the rejected. In his love, even the most heinous sinner can easily find a haven of care and protection. He lives and symbolizes truth by being silent and when he articulates, the truth of every word that he utters bursts in to a world of magnificent meaning that always inspires and elevates the heart of his listener. He sets before others an example by living his beautiful thoughts in a beautiful way.

He joined in Union Christian College, Aluva in 1947 to continue his academic studies. After specialising in Philosophy and Psychology in UCC he taught these subjects in two Indian Universities. He again sat at the feet of highly reputed sannyasis to learn Vedanta, Samkhya, Yoga, Mimamsa, Indian poetics and Literature. With a special flair for the meaning of the Bhagavad Gita and the Bible, he was the founder - chairperson of the East-West University of Brahmanidya, and also worked as the Commissioner for World Education and as a sponsor of the World Government of World Citizens. His life in Union Christian College has helped him to understand Bible and Bhagavath Gita in its full meaning and put forth the idea of world citizenship. A world citizen recognizes the entire world as one's state and in principle does not recognize any member of one's own species as an alien to the world community to which oneself belongs. Such a person recognizes the earth as one's sustaining mother, the innate inviolable laws of nature as one's protecting father, and all sentient beings as sharing one's home."

Guru Nitya published over 120 books in Malayalam and 80 books in English, as well as countless articles on Philosophy, psychology, social ethics and aesthetics. He attained his Maha Samadhi on May 14, 1999, and his legacy of love and wisdom continues in his writing and in his disciples. He was destined to embrace, embody and illumine a vast world of human aspiration and attainment. In his role as teacher, Nitya inspired students throughout the world. As a friend, he consoled and guided. For the new generation, these are unknown....

In view of this we started a program in our college called "NITYADARSANAM".

### The main objectives are

1. Celebrating Guru Nitya Chaitanya Yati Jayanthi on November 2<sup>nd</sup>
2. Lecture series on guru's principles may be conducted in the college.
3. Quiz programs
4. Essay competitions
5. Exhibition on all books of Guru Nitya
6. Visits to Fernhill Gurukula, Ootty and to his birthplace at Konni, Pathanamthitta Dist.
7. Lectures in association with Guru's Samadhi day, May 14<sup>th</sup>.



## Activities 2019

The NITYADARSANAM program of Union Christian College was started in January 2019 and inaugurated by Vinaya Chaitanya, a disciple of natarajaguru and an old student of the Department of English, Union Christian College. It is a unique platform for students to interact with eminent personalities from various fields.

In this event, writer Shri. Shoukath and Vinaya Chaitanya were the speakers, while Dr. Tara K. Simon, Principal, Union Christian College, welcomed the audience, and Dr. Seena Mathai delivered the vote of thanks.

The program was a resounding success, with the speakers sharing their insights and experiences. Students were enthralled by the speakers' wisdom and eloquence, and left the event feeling inspired and motivated.

The NITYADARSANAM program is a true asset to the Union Christian College community, and it is commendable that the college is committed to providing students with opportunities to learn from the best and brightest minds.









## *Program Schedule*

Welcome speech

Dr. Seena Mathai (HoD Psychology)

Presidential address

Dr. David Saj Mathew (Principal)

Talk & Interaction

***"Nitya chaitanya yati's teachings  
and their applications in life"***

by Shri. Shoukath (Yati's Disciple, Writer & Orator)

Felicitation

Rev. Dr. Thomas John

Mr. Shoban koodal (Writer)

Mr. Krishna Das Warriar (Poet)

Vote of thanks

Rekha Nair (Asst. Prof, English)

## 2020 Edition

Dr. Seena Mathai welcomed the audience, followed by a presidential address by Dr. David Saj Mathew. Writer and Yati's disciple Shoukath interacted with the audience and talked about “Yati's teachings and their applications in life”. The program concluded with felicitations by Rev. Dr. Thomas John, Krishna Das Warriar, and a vote of thanks by Dr. Rekna Nair Asst. Prof, Dept. of English.

The program was a true confluence of minds, with speakers from different walks of life coming together to share their wisdom and knowledge. Dr. Seena Mathai, Asst. Prof, Dept of Psychology welcomed the audience with a warm and inspiring speech.

Writer and Yati's disciple Shoukath interacted with the audience and talked about Yati's teachings and their applications in life. Shoukath's talk was both insightful and inspiring, and he left the audience with a lot to think about.





Nityadarsanam 2022: A mind-blowing session of wisdom and insights.





**യു.സി. കോളേജ്, ആലുവ**  
നിത്യചൈതന്യത്തി  
ലക്ചർ സീരീസ് - III, 2021-2022  
**“മൂല്യങ്ങളുടെ സ്വരലയം”**  
7 ജനുവരി 2022, രാവിലെ 10.00 മണി  
മിനി കോൺഫറൻസ് ഹാൾ, എം.സി.എ

**പ്രാർത്ഥന :**  
**സ്വാഗതം :** ഡോ. സിന. എം. മത്തായി,  
അസി. പ്രൊഫസർ, സൈക്കോളജി വിഭാഗം, യു.സി. കോളേജ്, ആലുവ.  
**അദ്ധ്യക്ഷത :** ഡോ. താരാ. കെ. സൈമൺ,  
പ്രിൻസിപ്പാൾ, യു.സി. കോളേജ്, ആലുവ.  
**പ്രദാക്ഷണം :**



**‘സ്ത്രൈണ ആത്മീയത’**  
ഡോ. റോസി തമ്പി



**‘അറിവ് എന്ന പ്രക്രിയ’**  
ഡോ. സുനിൽ. പി. ഇളയിടം,  
അസോസിയേറ്റ് പ്രൊഫസർ, മലയാള വിഭാഗം,  
ശ്രീ ശങ്കരാചാര്യ സംസ്കൃതം യൂണിവേഴ്സിറ്റി, കാലടി.



**‘അപൂർവ്വ വൈദ്യനാർ - നിത്യചൈതന്യത്തി’**  
പുസ്തക പരിചയം  
ശ്രീ. ഷൗക്കത്ത്

**നന്ദി :** മിസിസ്. രേഖാ നായർ,  
അസിസ്റ്റന്റ് പ്രൊഫസർ, ഇംഗ്ലീഷ് വിഭാഗം, യു.സി. കോളേജ്, ആലുവ.

**സംഘാടകർ**

സൈക്കോളജി വിഭാഗം, ബയോസയൻസ് വിഭാഗം, & പി.ജി. അസോസിയേഷൻ,  
യൂണിയൻ ക്രിസ്ത്യൻ കോളേജ്, ആലുവ.  
+91 9920 293 696

The program was kicked off with a welcome speech by Dr Seena Mathai, Asst. Prof in Psychology. The next session of Nityadarsanam 2022 featured three distinguished speakers from different walks of life:

- **Sunil P Ilayidam**, a renowned writer, orator and a Professor from Sree Sankaracharya Sanskrit University, explored the mysteries of knowledge.
- **Rosy Thampy**, a Rtd. professor in Malayalam and an author, took us on a journey of self-discovery.

• **Shoukath**, a writer, guru Nitya's disciple, and orator, reviewed the guru's book "Apoorva Vaidyanmaar."

Each speaker shared their unique perspectives and insights, leaving the audience with a lot to think about.

Sunil P. Ilayidam inspired us to think about the nature of knowledge and how we acquire it. He argued that knowledge is not simply a collection of facts, but rather a process of understanding and making meaning. Rosy Thampy reminded us of the importance of self-awareness.

Shoukath reviewed the guru's book "Apoorva Vaidyanmaar," which is a collection of stories about extraordinary healers. He spoke about how getting to know ourselves better can help us live more fulfilling and meaningful lives. Shoukath's talk was both informative and inspiring, and it left the audience with a sense of hope and possibility.

Overall, Nityadarsanam 2022 was a mind-blowing experience. The speakers were engaging and thought-provoking, and they left the audience with a lot to ponder.

The program ended with a vote of thanks by Dr. Rekha Nair, Asst. professor of English at Union Christian College.



## Kandal Club

This Club is Dedicated to the conservation of mangroves.

**KANDAL CLUB**  
Mathrubhumi UC College Aluva

Academic Year 2022-2023

**Principal handing over memento to the Delegate Mr. Anandan Pokkuden**

**M Mathrubhumi മാതൃഭൂമി**

**ആലുവ യു.സി. കോളേജിൽ കണ്ടൽ ക്ലബ്ബ്**

● ആലുവ യു.സി. കോളേജിലെ കണ്ടൽ ക്ലബ്ബ് ഉദ്ഘാടനച്ചടങ്ങിനിടെ  
**ആലുവ •** ആലുവ യു.സി. കോളേജിൽ കണ്ടൽ ക്ലബ്ബ് ആറംഗീകൃത പരിസ്ഥിതി പ്രവർത്തകൻ കണ്ടൽ സ്വാക്ഷേപണ മരുന്നും പരിസ്ഥിതി പ്രവർത്തകനും അധ്യക്ഷനായാണ് ആനന്ദൻ പോക്കുடன் ഉദ്ഘാടനം ചെയ്തു.  
യോഗം ൧ റീനയർ ക്ലബ്ബിന്റെ ഉദ്ഘാടനം നിങ്ങൾ പറഞ്ഞുകേൾ സഖി വരുമെന്നറിയിച്ചു.

അദ്ധ്യക്ഷനായി ചന്ദ്ര ജി രാജൻ, ഗണേഷ് സെമ്മിൻ, സമാജ് അന്ന തൊട്ടൻ, വിശ്വൻ തോമസ് എന്നിവർ സംസാരിച്ചു.

14/04/2023 ALUVA-ANGAMALY-KALADY Pg 13

News report came about the Kandal Club Inauguration at UC College in Mathrubhumi Newspaper dated 14-04-2023



## Dry Leaf Compost

Deciduous trees such as mahogany (*Swietenia mahagoni*) in our college campus shed their leaves during hot summer. These dried leaves are traditionally gathered and burned to ashes. Instead, a collection of these dried leaves can be transformed into organic fertilizer. Moreover, these dried leaves are high in carbon and have a small amount of the nutrients that plants require to thrive. Dry leaf compost is created from plant materials such as grass, dry leaves, or vegetable leftovers that can be decomposed. Thereby, these dry leaf compost can help in enriching the soil, holding moisture, suppressing plant diseases, and filtering harmful pests. Composting reduces the need for chemical fertilizers.



## Processing







## Management of Tea Waste from Canteen

Tea waste from canteen was successfully managed by converting it into a soil additive for artificial propagation of 3 plant species and Rooting of stem cutting technology using phytohormones for propagating 6 ornamental plants in the campus.



### Outcome

- Burning of dry leaves which shed heavily during summer months tremendously decreased.



## List of Patents

### FORM 2

THE PATENTS ACT, 1970(39 of 1970)

&

The Patent Rules, 2003

### COMPLETE SPECIFICATION

(See section 10 and rule 13)

### TITLE OF THE INVENTION

"E-commerce Expansion Management"

We, applicant(s)

NAME	NATIONALITY	ADDRESS
1. Dr. R. GOPINATH	INDIAN	D.Litt. (Business Administration)- Researcher & BSNL Engineer, Madurai Kamaraj University, Palkalai Nagar, Madurai- 625021, Tamil Nadu.
2. Dr. Arya Kumar	INDIAN	Assistant Professor, KIIT School of Commerce and Economics, KIIT Deemed to be University, Bhubaneswar- 751024, Odisha.
3. Dr.S.V.Akilandeeswari	INDIAN	Guest/Part Time Teacher, The Gandhigram Rural Institute- Deemed to be University, Gandhigram-Chinnalapatti, Dindigul-624302, Tamil Nadu.
4. Dr. Renju Chandran	INDIAN	HoD and Assistant Professor, School of Management Studies, Union Christian College, Aluva- 683102, Kerala.
5. Sarath Chandran MC	INDIAN	Assistant Professor, Department of Commerce and Management, Amrita School of Arts and Science, Amrita Vishwa Vidhyapeetam, Amritapuri, Kollam- 690525 Kerala.
6. BASAVARAJ S MAMMANI	INDIAN	Assistant Professor, Faculty of Business Studies MBA, Sharnbasva University, Sharan Nagar, Kalaburagi- 585103, Karnataka.

The following specification particularly describes the nature of the invention and the manner in which it is performed:

## [01] FIELD OF THE INVENTION

The present invention relates to deal with the business model of e-commerce expansion abroad within India. Furthermore, a management plan for systematic expansion with risk minimization, stabilization of current international operations with data is proposed.

## 5 [02] BACKGROUND OF THE INVENTION

The analytical part of the work will focus on the company COMPASS INDIA. This company is engaged in the retail sale of shelving systems and penetrated two foreign countries within six months. This part of the work will deal with the examination of the internal environment of the company, the branch environment of the company and the  
10 macroenvironment of potential territorial expansion.

The microenvironment will be analyzed to gain insight into the company's internal model, and McKinsey's 7S model will be used for this purpose and applied to available business information. This information will serve the authors of the work primarily to optimize the firm rules of the company and at the same time to understand the internal philosophy of  
15 business. The authors will get an overview of the strengths and weaknesses of the company.

Furthermore, the industry environment of the company for tactical expansion planning with respect to competitors and customers will be analyzed. This environment will be analyzed using Porter's analysis of the five forces. Through this analysis, the authors obtains some  
20 information about possible opportunities and threats to the company.

Last but not least, environmental factors will be examined using SLEPT analysis. This analysis will be applied to selected markets in Asia in order to identify possible expansion opportunities for the surveyed company. Positive and negative factors of the external and internal environment will be summarized in the SWOT analysis in order to understand the  
25 complexity of the expansion potential.

In the practical part, solutions will be proposed both for optimizing the internal character of the company and for strategic expansion planning. Modeling of various scenarios that expansion can take will be presented. Based on the modeling, potential risks will be revealed, which the authors will try, as far as possible, to eliminate. It will be evaluated whether the company has chosen the right procedures in its rapid entry into foreign markets and whether there are risks associated with the stability of the company in these markets. Furthermore, recommendations will be proposed for stabilization and subsequent management steps for efforts and safer expansion into other markets. The systematic nature of the proposals will be conceived primarily from the geographical process and the technical approach. The basis for this work will be professional literature, professional Internet sources, current market information from credible sources, statistical or analytical methods and interviews with industry experts in this field.

The authors use not only external sources and methods for his elaboration, but also his own empirical knowledge and expert estimates, which he has acquired during his practice in the field. Entrepreneurship and professional activity in the field of digital commerce (e-commerce) has contributed to the acquisition of knowledge and the building of certain intuitive skills that can be used in indecisive situations of this work.

### [03] SUMMARY OF THE PRESENT INVENTION

The surveyed company currently operates in three Asian countries and has ambitions to expand to other countries. Based on these goals, the internal, industry and external environment of the company was analyzed. Using McKinsey's 7S model, internal factors were identified where the strengths include:

- Management expertise,
- Technological coverage, and
- Shared values.



Gradual expansion into five selected countries was modeled by five possible scenarios, where expansion was considered an investment. Subsequently, the expansions were evaluated by the course of financial flows and the appreciation of the invested equity in the horizon of 5 years:

- 5
  - A very pessimistic option - the investment will fail,
  - Pessimistic variant - with an adjustment of pricing and external financing of INR 5 million, an average of 15% p.a. will be appreciated,
  - Realistic variant - when the INR 1 million is used up, there will be an average appreciation of 363% p.a.,
- 10
  - Optimistic variant - there will be an average appreciation of 2.445% p.a. and
  - very optimistic variant - there will be an average appreciation of 5.056% p.a

All successful strategies can be strengthened with financial leverage with the help of external capital, which is cheaper. However, it is necessary to take into account the fact that a large part of the success depends on optimized supply, which affects the liquidity of the company. For the continuity of the expansion, it is necessary to replenish stocks smoothly and with a low inventory turnover time.

With the right management of the expansion, this investment can be a key milestone in the penetration of attractive Indian markets and at the same time a means of building large capital strength.

## 20 [04] BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof.

Such description makes reference to the annexed drawings wherein:

FIG 1: Very pessimistic variant

FIG 2: Very pessimistic variant (+ 2.5M external financing)

FIG 3: Pessimistic variant

FIG 4: Adjusted pessimistic variant

FIG 5: Adjusted pessimistic variant (+ 5M external financing)

5 FIG 6: Realistic variant

FIG 7: Realistic variant (+ 1M external financing)

FIG 8: Realistic variant (+ 10M external financing)

FIG 9: Optimistic variant

FIG 10: Very optimistic variant

## 10 DETAILED DESCRIPTION OF THE INVENTION

### [05] Expansion strategies

This part of the work will focus on the expansion strategy, which means the introduction of the first five countries to which the company will be recommended to expand. The recommendations of individual countries will be based on the performed analyzes of the

15 macroenvironment.

### [06] First country

India is the company recommended as the first country to expand. India has a large population (1,380,004,385), with an average disposable income of over 206982630.00 INR Million per year, which creates a large potential customer base. It's acting is one of the few

20 importing countries in Asia. High law enforcement suggests that e-commerce in this country can be considered safe.

The country's electronic market is relatively fresh and not very crowded with competition - the main online retailers in this country are Amazon and eBay. Compared to the researched company, these sellers have high sales prices of the corresponding

25 assortment (by 57%) and delivery time (4 days), which the researched company is also

able to offer. Internet penetration here is 76.6%, which further highlights the high potential of e-commerce.

## [07] Second country

The second country in which the company is recommended to expand is Malaysia.

- 5 Malaysia has similar characteristics to India. It is also a country with a relatively high population (32,365,999), where disposable income exceeds 5,761.586 USD per year.

The electronic market is also relatively fresh here, with growth forecast of 8.7% per year.

An interesting fact is the relatively high interest in the section of household equipment and furniture (41%). Amazon and eBay are currently the dominant players in the market. No

- 10 competing product could be found on any other platform, despite the fact that there is a local shelving manufacturer. The prices on these platforms are significantly higher than what the researched company can offer (by 122%) and the delivery time is very long - on average 9.5 days.

The above factors make Malaysia a very promising market for Shahi Exports's interests.

## 15 [08] Third country

The country in which the company should expand third is Sri Lanka. Compared to previous countries, Sri Lanka is a relatively small country (21,413,249), where a future decline is predicted. However, it is more of an import country with a low administrative burden and GDP growth is expected here after the pandemic crisis. It is also a country

- 20 with high law enforcement, which legislatively ensures strategic entry.

Sri Lankan e-commerce is just about to ripen, or is still maturing, but it is still at a high level. The share of e-commerce in digital turnover is 46.3% with 75% Internet penetration.

Assuming that the surveyed company enters the country only in the third step, it is possible to speculate on maturing in the period of previous expansions.



Local prices of competing retailers are 27.5% higher than those offered by Shahi Exports in India. Local delivery times are relatively long (average 6 days), however the need to take into account the geographical shape of the country, which to some extent affects the flexibility of logistics.

5 **[09] Fourth country**

Thailand is the fourth country to expand. Thailand is a medium-sized country with a population of 69,799,978. This is mainly an importing country with a low administrative burden. It was revealed from unofficial leaked sources of competition that Thailand has great potential in this range.

- 10 It is a country with high law enforcement, but the political situation suggests that corruption may play a role in the country - the fight against corruption has been identified in the analysis as moderate, which can be considered a threat. The company should therefore take this risk into account and adapt accordingly (eg only allow advance payment).

Thailand e-commerce can be considered advanced, 41% of the population is interested in

- 15 furniture, e-commerce generates 52.8% of digital turnover and 67.2% of the population uses the Internet here.

Local delivery prices are about 25% higher than those offered by Shahi Exports in India. At the same time, there is a delivery time of slightly over 4 days, which are competitive conditions for the company.

20 **[010] Fifth country**

The fifth and last country that the company should enter in this work is Singapore. Singapore is the largest country recommended for the company for expansion (5,850,342). From the information obtained by the authors through independent interviews with experienced entrepreneurs, it was found that entering the Singapore market is very

capital intensive and that the local customer base is usually very demanding. This is one of the main reasons why Singapore is included in the fifth step of expansion - the motive is the goal of building capital strength in less demanding countries.

Singapore has a well-developed market, where 71.8% of digital turnover comes from e-commerce. There is 43% interest in furniture and 85.9% internet penetration.

The local prices of competitors are 24% higher than those offered by the surveyed company on the domestic market. Delivery time is surprisingly long here - the average is above one week. Such conditions create a competitive environment for the company.

## [11] Impact modeling

This part of the work focuses on the economic side of the planned expansion into five Asian countries. The aim is to determine the cost and profitability of the proposed solutions based on several input parameters. These parameters are estimated in the form of extremes, where the resulting variance is adequately divided into five sections - from a very optimistic to a very pessimistic variant.

One of the partial methods of calculations is the analysis of variables based on the expansion to current foreign countries (Slovakia, Hungary). The message that will be part of the subsequent modeling is the presentation of the so-called "worst and best case scenario".

When calculating the cost of software development, the employment of one to three IT workers was considered for development, while their salary evaluation was set between INR 34,990 and INR 87,281 per month + employer's costs (Accenture., 2021).

To hire an employee as a project manager in order to increase and coordinate the company's activities, a gross salary of INR 33,541 to INR 81,392 per month + employer's costs was considered (Accenture., 2021).

In the following variants, constants for 5 target countries were considered.

- Population
- Digital turnover [USD]
- The share of e-commerce
- Growth until 2024
- 5    • The share of furniture in e-commerce
- Internet penetration

These are analyzed for five countries. Several variables (assumptions) were also taken into account. Extreme limits were set for these variables, which were used for the extreme variants. The values are based on surveys or empirical knowledge of the authors of the work, either in the form of estimating the average (including deviations) or finding extreme limits using other analytical methods.

Assumed variances of variable values includes

- Assortment share
- Interest in the assortment
- USD exchange rate
- Market potential of the 1st country
- Market potential of the 2nd country
- Third country market potential
- Market potential of the 4th country
- Market potential of the 5th country
- Current fixed costs
- Average margin
- Minimal marketing costs (month / shop)
- Marketing campaigns (turnover share)
- Indirect costs (turnover share)
- Market penetration rate (per month)
- Available funds
- Interest rate (% p.a.)



## [12] A very pessimistic variant

The extremely negative scenario considers the following values:

Parameters of a very pessimistic variant are:

- Assortment share
- Interest in the assortment
- USD exchange rate
- Market potential of the 1st country
- Market potential of the 2nd country
- Third country market potential
- Market potential of the 4th country
- Market potential of the 5th country
- Current fixed costs
- Average margin
- Minimal marketing costs (month / shop)
- Marketing campaigns (turnover share)
- Indirect costs (turnover share)
- Market penetration rate (per month)
- Available funds
- Interest rate (% p.a.)

5 Although this is a very unlikely option, it is necessary to know the impact of the scenario where all the considered parameters play to the detriment of the company:

In such a situation, the company enters into an investment with equity of INR 1 million, which is not even sufficient for the implementation of the proposed software. Such a scenario mainly shows a fatal management failure in software complexity calculations.

10 Even assuming that the company draws on external financing in the amount of INR 2.5 million during the third month, the investment will still fail:

The very pessimistic variant in all simulations ends in failure. In short, it is an interplay of accidents that is exacerbated by management failure. Such a tendency should be

detected by the management mainly due to the impossibility of reaching the turning point.

In this modeling, a 30% margin of goods is assumed, but the indirect variable costs are 42%. If a company is unable to optimize its costs (or its competition does not allow it to increase the price of goods), this form of investment will always be unprofitable for it.

A detailed calculation of the course of financial flows of a very pessimistic variant is part of

5 the appendices of this work.

## [13] Pessimistic variant

Pessimistic calculates with the following values:

- Assortment share
- Interest in the assortment
- USD exchange rate
- Market potential of the 1st country
- Market potential of the 2nd country
- Third country market potential
- Market potential of the 4th country
- Market potential of the 5th country
- Current fixed costs
- Average margin
- Minimal marketing costs (month / shop)
- Marketing campaigns (turnover share)
- Indirect costs (turnover share)
- Market penetration rate (per month)
- Available funds
- Interest rate (% p.a.)

This variant, as well as the very pessimistic variant, creates a state where it is not possible

10 to generate a sufficient cover contribution to reach the turning point. This situation is therefore, according to the rules of modeling, unsolvable:

In order to increase the telling value of the pessimistic scenario, the margin was adjusted,

just for this situation, from 35% to 40%:

Although this scenario has a realistically achievable turning point, the provided capital of INR 1.5 million is insufficient for its implementation. Therefore, a loan (or alternative method of external financing) was drawn during the 3rd month with an interest rate of 7.25% p.a. Thanks to this capital, the entry into the first country was realized during the 4th month, but in the five-year horizon it was not possible to raise capital for the entry into other countries. The loan was repaid in the 55th month and the average return on equity of this investment is 15% p.a. :

A detailed calculation of the course of financial flows of the adjusted pessimistic variant with 5 million external financing is part of the appendices of this work.

#### [014] Realistic variant

The realistic variant calculates with the following values of the variables:

- Assortment share
- Interest in the assortment
- USD exchange rate
- Market potential of the 1st country
- Market potential of the 2nd country
- Third country market potential
- Market potential of the 4th country
- Market potential of the 5th country
- Current fixed costs
- Average margin
- Minimal marketing. costs (month / shop)
- Marketing campaigns (turnover share)
- Indirect costs (turnover share)
- Market penetration rate (per month)
- Available funds
- Interest rate (% p.a.)



The realistic option envisages an equity injection of INR 2 million. However, such an amount is consumed between the 9th and 10th month of the life of the investment, as the business in the new the country did not generate sufficient turnover to cover the minimum costs associated with its operation:

- 5 To successfully complete the implementation of this investment, it was subsequently modeled with external capital of INR 1 million during the first month, with an interest rate of 5.5% p.a. This external financing was repaid during the 15th month. The expansion to the first country was possible during the 4th month. It was subsequently possible to expand in parallel to other countries at the beginning of the third year of investment. The capital
- 10 appreciation of the investment in this case is 363% p.a.:

Equity appreciation can be carried out with the help of financial leverage when drawing on higher external financing. With the drawdown of INR 10 million in financing, the appreciation of equity is on average around 610% p.a.:

- A detailed calculation of the course of financial flows of the realistic variant with 1 million
- 15 external financing is part of the appendices of this work.

### **[015] Optimistic variant**

The optimistic variant indicates a favorable development of circumstances in combination with high-quality management. The following values are included:

	<ul style="list-style-type: none"> <li>Assortment share</li> <li>Interest in the assortment</li> <li>USD exchange rate</li> <li>Market potential of the 1st country</li> <li>Market potential of the 2nd country</li> <li>Third country market potential</li> <li>Market potential of the 4th country</li> <li>Market potential of the 5th country</li> <li>Current fixed costs</li> <li>Average margin</li> <li>Minimal marketing costs (month / shop)</li> <li>Marketing campaigns (turnover share)</li> </ul>
5	
	<ul style="list-style-type: none"> <li>Indirect costs (turnover share)</li> <li>Market penetration rate (per month)</li> <li>Available funds</li> <li>Interest rate (% p.a.)</li> </ul>
10	

In this scenario, the company enters into an investment with equity of INR 2.5 million.

15 There is no need for external capital to successfully complete the expansion. Expansion to the first country is expected during the third month, and to other countries during the fourth month. The appreciation of equity over a 5 - year horizon is estimated at 2.445% p.a.:

## [16] A very optimistic option

The very optimistic variant is the opposite of the very pessimistic variant. Again, this is a 20 highly unlikely scenario, but not unrealistic. In this situation, it is assumed that all variables play in favor of the company, which is subsequently exacerbated by flawless expansion management:

Parameters of a very optimistic variant:

5	<ul style="list-style-type: none"> <li>Assortment share</li> <li>Interest in the assortment</li> <li>USD exchange rate</li> <li>Market potential of the 1st country</li> <li>Market potential of the 2nd country</li> <li>Third country market potential</li> <li>Market potential of the 4th country</li> <li>Market potential of the 5th country</li> <li>Current fixed costs</li> <li>Average margin</li> <li>Minimal marketing costs (month / shop)</li> <li>Marketing campaigns (turnover share)</li> </ul>
10	<ul style="list-style-type: none"> <li>Indirect costs (turnover share)</li> <li>Market penetration rate (per month)</li> <li>Available funds</li> <li>Interest rate (% p.a.)</li> </ul>

The very optimistic scenario considers available equity of INR 3 million. Very fast development with only one developer with a low wage score is expected here. At the same time, a low labor cost and a high margin on the goods sold (50%) are generally considered here. The considered cost of marketing campaigns (20%) is, according to current information, a highly optimized state, which is very difficult to obtain in this field. At the same time, the great potential of the market with relatively easy penetration is considered. Expansion to the 1st country can be realized during the 2nd month - expansion to other countries then during the third month. Without the use of any external financing, the appreciation of equity is estimated at an average of 5,056% p.a.:

A detailed calculation of the course of financial flows of a very optimistic variant is part of the appendices of this work.

## [17] Risk analysis

During the theoretical and practical part, several factors were revealed, both external and internal, which cannot be unambiguously controlled and which may pose certain risks for



expansion. This part of the work will therefore focus on their enumeration, importance, impact and possible prevention options.

The authors considers the greatest (external) risk to be insufficient information about the demand of foreign markets. Job proposals, resp. modeled simulations, are based on 5 statistical data and are formed by a deterministic model of market size estimation. Some values used are based on a wider sample of data (e.g. e-commerce turnover), but some values are based on a smaller sample (e.g. interest in a range of furniture). Whatever the proportion of the sample, the design is still considered to be generally perfect.

However, reality represents a rather stochastic model influenced by influences that cannot 10 be effectively taken into account in the framework of this work. An example can be the color scheme of the website, the name of the store, the optics of pricing, the way of photographing products, the credibility of the Indian companies, SEO, etc. Deeper marketing analysis of the market can be a measure against failure in this area. One of the ways the company has proven itself in history is to test customers in C2C markets (e.g. 15 Facebook Marketplace). At minimal cost, communication with real target customers can be tested in an effort to understand their demand.

The second risk (external) is the potential threat of a strong competitor entering the market or a company from another sector. Such a large player can be large e-commerce platforms (eBay, Amazon), which would start to supply the range under their own brand 20 (and with greater economies of scale), but also the manufacturers themselves. Currently, the manufacturers themselves are not very active in the online market and focus primarily on offline wholesale. The entry of a direct producer into the market could create a major (cost) competitive disadvantage - almost uncompetitive. The most effective defense against this risk is one of the proposals - i.e. the exclusive representation of a non-Indian 25 supplier. Such representation, in which this manufacturer is not able to compete with local

conditions (eg delivery time), but in terms of price.

The third risk (internal) is the weaknesses of the company. Although the ideas in this work are proposals for their compensation, some weaknesses can be managed better (e.g. systematicity), some can be managed less well (eg purposefulness of key employees).

5 Against these risks, a thorough control and retrospective analysis of the implemented proposals can only be recommended. If weaknesses are not eliminated, it is necessary to continue to implement measures that will lead to elimination.

The fourth risk (internal) is capital strength, resp. weakness of the company. As part of the expansion modeling, capital was calculated that is in line with the company's internal  
10 policy (i.e. around 3 million). This bottleneck may make expansion impossible (e.g. to optimize supply) and expansion may fail. In the models themselves, it can be noted that some scenarios are successfully feasible only with external capital, but due to the short banking history of the company, it can be problematic to provide this financing. It would be appropriate for the company to properly prepare for this, for example, through the capital  
15 input of the investor (so-called business angel).

The fifth risk (external) is the exchange rate movements of foreign currencies. As the company operates in several currencies, the number of which will increase with the new countries, and purchases from non-Indian carriers are likely to be in US dollars, it is necessary to prepare possible exchange rate losses. The company should therefore hold  
20 the vast majority of capital in the most stable currency (which the authors considers the euro) and, if necessary, secure suitable derivatives (preferably futures) to avoid the aforementioned losses when purchasing goods.

The last important risk (internal) is perceived by the authors in the administration of several unknown countries, especially in relation to state institutions. Risks associated  
25 with, for example, different tax codes or legal responsibilities can be caused by the



company considerable problems. This risk can be eliminated mainly by active preventive measures - thorough consultations with legal, tax and similar advisors on this issue are necessary.

WPS Office





## Department of Botany

### FORM 2

THE PATENTS ACT, 1970

(39 of 1970)

&

The Patent Rules, 2003

### PROVISIONAL SPECIFICATION

(See sections 10 & rule 13)

## 1. TITLE OF THE INVENTION

**PRESSED ENRICHED WHOLE PLANT SALVINIA PITH (SALVIPITH) GRAINS, ITS PRODUCTION METHODS, AND USE THEREOF**

## 2. APPLICANT (S)

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### NATIONALITY

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Research Scholar, Department of Botany, Union Christian College, Aluva, Kerala - 683102, India.

## 3. PREAMBLE TO THE DESCRIPTION

### PROVISIONAL SPECIFICATION

The following specification describes the invention.

## FIELD OF THE INVENTION

[0001] The present invention relates to soil additives. Specifically, the present invention relates to a process for the production of a soil additive from a floating hydrophytic pteridophytic weed plant salvinia as salvipith, comprises forming the salvinia plant into a powder form. Further, the process for the production of 5 salvipith as a soil additive is economical and of ecological importance. Also, the salvinia powder can be a substitute for cat litter and other types of pet bedding and litter.

## BACKGROUND OF THE INVENTION 10

[0002] Background description includes information that may be useful in understanding the present invention. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art.

[0003] A typical giant salvinia plant is comprised of units (ramets) of three 15 leaves (fronds). Ramets are joined by underwater stems (rhizomes) that have apical and axillary buds. The two floating leaves are covered with numerous leaf hairs, which make these leaves resistant to wetting. Giant salvinia can be identified by the cage-like configuration of the leaf hairs. Each submerged leaf is finely dissected and these are often mistaken for roots. These modified leaves, and associated 20 sporocarps, trail beneath the surface of the water and can be several feet in length.

[0004] There are a lot of soil additives available in the market. A soil additive or soil binder can be used as a soil-less medium for plantation, agricultural and horticultural purposes. There is a need for an improved soil additive that can slow or arrest the rate of evaporation from soils, for example soils predominately 25 containing clay or soils located in high temperature or high wind areas. This, in turn, helps to provide improved water usage by plants and grasses. There is also a need for a soil additive that is useful in the promotion of seed germination, as well as the promotion of plant and crop yield.

[0005] Therefore, there is an unmet need in the art to develop a soil additive that improves the soil's physical quality, root penetration and root growth quality and further helps to limit the threat of one of the major invasive aquatic plants.

## OBJECTIVE OF THE INVENTION 5

[0006] An objective of the present invention is to provide a process for the production of a soil additive from a floating hydrophytic pteridophytic weed plant salvinia as salvipith, comprises forming the salvinia plant into a powder form.

[0007] Another objective of the present invention is to provide a process for the production of salvipith as a soil additive that is economical and of ecological 10 importance.

[0008] Another objective of the present invention is to provide salvinia powder which can be a substitute for cat litter and other types of pet bedding and litter.

15

## SUMMARY OF THE INVENTION

[0009] The present invention relates to a process for the production of a soil additive from a floating hydrophytic pteridophytic weed plant salvinia as salvipith, comprises forming the salvinia plant into a powder form. Further, the process for the production of salvipith as a soil additive is economical and of ecological 20 importance. Also, the salvinia powder can be a substitute for cat litter and other types of pet bedding and litter.

[0010] In an aspect, the present invention relates to a process for the production of a soil additive from a floating hydrophytic pteridophytic weed plant salvinia as salvipith, wherein the salvipith comprises forming the salvinia plant into 25 a powder form, comprising the steps of:

- a) processing salvinia in a dry state using mechanical methods to powder the material;
- b) extruding the salvinia powder through a screen;
- c) mixing with an additional agent, and compressing mechanically. 30

[0011] In another aspect of the present invention, the pressed enriched whole plant salvinia is used to form salvipith grains.

[0012] In another aspect of the present invention, the mechanical method is selected from milling, grinding, and pulverizing or a combination thereof.

[0013] In another aspect of the present invention, the processed salvinia 5 plants are dried and powdered into desired particle size with the help of a pulverizer.

[0014] In another aspect of the present invention, the pith is in admixture with a binder.

[0015] Various objects, features, aspects and advantages of the inventive subject matter will become more apparent from the following detailed description 10 of preferred embodiments.

## DETAILED DESCRIPTION OF THE INVENTION

[0016] Those skilled in the art will be aware that the present disclosure is subject to variations and modifications other than those specifically described. It is 15 to be understood that the present disclosure includes all such variations and modifications. The disclosure also includes all such steps, features, compositions and compounds referred to or indicated in this specification, individually or collectively, and any and all combinations of any or more of such steps or features.

[0017] Unless the context requires otherwise, throughout the specification 20 which follow, the word “comprise” and variations thereof, such as, “comprises” and “comprising” are to be construed in an open, inclusive sense that is as “including, but not limited to.”

[0018] Reference throughout this specification to “one embodiment” or “an embodiment” means that a particular feature, structure or characteristic described 25 in connection with the embodiment is included in at least one embodiment. Thus, the appearances of the phrases “in one embodiment” or “in an embodiment” in various places throughout this specification are not necessarily all referring to the same embodiment. Furthermore, the particular features, structures, or characteristics may be combined in any suitable manner in one or more 30 embodiments.

[0019] As used in the description herein and throughout the claims that follow, the meaning of “a,” “an,” and “the” includes plural reference unless the context clearly dictates otherwise. Also, as used in the description herein, the meaning of “in” includes “in” and “on” unless the context clearly dictates otherwise. 5

[0020] In some embodiments, the numbers expressing quantities of ingredients, properties such as concentration, and so forth, used to describe and claim certain embodiments of the invention are to be understood as being modified in some instances by the term “about.” Accordingly, in some embodiments, the numerical parameters set forth in the written description are approximations that 10 can vary depending upon the desired properties sought to be obtained by a particular



embodiment. In some embodiments, the numerical parameters should be constructed in light of the number of reported significant digits and by applying ordinary rounding techniques. Notwithstanding that the numerical ranges and parameters setting forth the broad scope of some embodiments of the invention are 15 approximations, the numerical values set forth in the specific examples are reported as precisely as practicable.

**[0021]** The recitation of ranges of values herein is merely intended to serve as a shorthand method of referring individually to each separate value falling within the range. Unless otherwise indicated herein, each individual value is incorporated 20 into the specification as if it were individually recited herein.

**[0022]** All processes described herein can be performed in suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g. “such as”) provided with respect to certain embodiments herein is intended merely to better illuminate the 25 invention and does not pose a limitation on the scope of the invention otherwise claimed. No language in the specification should be construed as indicating any non-claimed element essential to the practice of the invention.

**[0023]** The headings and abstract of the invention provided herein are for convenience only and do not interpret the scope or meaning of the embodiments.

**[0024]** Various terms are used herein. To the extent a term used in a claim is not defined below, it should be given the broadest definition persons in the pertinent art have given that term as reflected in printed publications and issued patents at the time of filing.

**[0025]** In a general embodiment, the present invention relates to a process for 5 the production of a soil additive from a floating hydrophytic pteridophytic weed plant salvinia as salvipith, comprises forming the salvinia plant into a powder form. Further, the process for the production of salvipith as a soil additive is economical and of ecological importance. Also, the salvinia powder can be a substitute for cat litter and other types of pet bedding and litter. 10

**[0026]** In an embodiment, the present invention relates to a process for the production of a soil additive from a floating hydrophytic pteridophytic weed plant salvinia as salvipith, wherein the salvipith comprises forming the salvinia plant into a powder form, comprising the steps of:

- a) processing salvinia in a dry state using mechanical methods to powder the 15 material;
- b) extruding the salvinia powder through a screen;
- c) mixing with an additional agent, and compressing mechanically.

**[0027]** In another embodiment of the present invention, the pressed enriched whole plant salvinia is used to form salvipith grains. 20

**[0028]** In another embodiment of the present invention, the mechanical method is selected from milling, grinding, and pulverizing or a combination thereof. Preferably, the processed salvinia plants are dried and powdered into desired particle size with the help of a pulverizer.

**[0029]** In another embodiment of the present invention, the pith is in 25 admixture with a binder.

**[0030]** In another embodiment of the present invention, the proposed salvipith technology is economical in a way that it is made from one of the topmost invasive surface floating aquatic

pteridophyte plants in the world which highly contribute to succession in water bodies and reduction of oxygen availability in

water thereby causing species extinction of fishes. Apart from this, the use of salvipith will increase the soil nutrient quality and is scientifically validated.

[0031] In another embodiment of the present invention, the soil additive improves the soil's physical and root penetration and root growth quality and thereby cause change in root/stem biomass ratio. Also, the highly effective 5 adsorption and nutrient quality of the invention may be utilized in horticulture, agriculture, and plantation areas.

[0032] While the foregoing describes various embodiments of the disclosure, other and further embodiments of the disclosure may be devised without departing from the basic scope thereof. The invention is not limited to the described 10 embodiments, versions or examples, which are included to enable a person having ordinary skill in the art to make and use the invention when combined with information and knowledge available to the person having ordinary skill in the art.

#### **ADVANTAGES OF THE PRESENT INVENTION 15**

1. The present invention provides a process for the production of salvipith as a soil additive that is economical and of ecological importance.

2. The present invention provides salvinia powder which can be a substitute for cat litter and other types of pet bedding and litter.

3. The present invention provides a soil additive that helps to limit the threat 20 of one of the major invasive aquatic plants.

4. The present invention provides a soil additive that improves the soil's physical, root penetration and root growth quality and thereby cause change in root/stem biomass ratio.

5. The present invention provides a soil additive with highly effective 25 adsorption and nutrient quality that may be utilized in horticulture, agriculture, and plantation areas.

#### **ABSTRACT**

#### **PRESSED ENRICHED WHOLE PLANT SALVINIA PITH (SALVIPITH) GRAINS, ITS PRODUCTION METHODS, AND USE THEREOF**

The present invention relates to soil additives. Specifically, the present invention 5 relates to a process for the production of a soil additive from a floating hydrophytic pteridophytic weed plant salvinia as salvipith, comprises forming the salvinia plant into a powder form. Further, the process for the production of salvipith as a soil additive is economical and of ecological importance. Also, the salvinia powder can be a substitute for cat litter and other types of pet bedding and litter. 10

**For NAYAGAM, Justin Raja and ADIERY, Sagna**

**Tarun Khurana**

**Regd. Patent Agent [IN/PA-1325] 15**

**Dated: 31st May, 2023**



## FORM 1

**THE PATENTS ACT, 1970 (39 of 1970)**

**&**

**The Patents Rules, 2003**

**APPLICATION FOR GRANT OF PATENT**

*[See section 7, 54 & 135 and rule 20(1)]*

**1. APPLICANT'S REFERENCE /**

**IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)**

**2. TYPE OF APPLICATION**

Ordinary (☒)

Divisional (☐)

Patent of

Addition (☐)

Convention (☐)

Divisional (☐)

Patent of

Addition (☐)

PCT-NP (☐)

Divisional (☐)

Patent  
of  
Addition  
(☐)

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### 3B. CATEGORY OF APPLICANT

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Small Entity (☐)

Startup (☐)

Other than Natural Person

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Institution(s) (☐)

Others (☐)

### 4. INVENTOR(S)

Are all the inventor(s) same as the  
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Yes (☒)

No (☐)

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### 5. TITLE OF THE INVENTION:





## PRESSED ENRICHED WHOLE PLANT SALVINIA PITH (SALVIPITH) GRAINS, ITS PRODUCTION METHODS, AND USE THEREOF

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**8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION**

Country	Application No.	Filing Date	Name of Applicant	Title of Invention	IPC (as classified in the convention country)
-	-	-	-	-	-

**9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT)**

International Application No.	International filing date as allotted by the receiving office
-	-

**10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION**

Original (First) Application No.	Date of filing of Original (First) Application
Nil	Nil

**11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT**

Main Application/Patent No.	Date of filing of Main Application
Nil	Nil

**12. DECLARATIONS**

**(i) Declarations by Inventor(s)**

We, the above named inventor(s) is/are the true & first inventor(s) for this invention and declare that the applicant(s) herein is/are my/our assignee.

Signature \_\_\_\_\_

Name(s) NAYAGAM, Justin Raja

Signature \_\_\_\_\_

Name(s) ADIERY, Sagna

**(ii) Declaration by the Applicant(s) in the convention country**

We, the Applicant(s) in the convention country declare that the applicant (s) herein is/are my/our assignee or legal representative.

Date:



Signature:

Name(s)

**(iii) Declaration by the Applicant(s) I/We hereby declare(s) that**

- ☒ I am /We are in possession of the above mentioned invention.
- ☒ Provisional Specification relating to the invention is filed with this application.
- ☐ The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.
- ☒ There is no lawful ground of objection to the grant of patent to me/us.
- ☒ I am / we are the assignee or legal representative of true & first Inventors.
- ☐ The application or each of applications, particulars of which are given in para 8, was the first application in convention country / countries in respect of my/our invention.
- ☐ We claim priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention has been made in a convention country before that date by me/us or by any person from which I/We derive the title.
- ☐ Our application is based on International application under Patent Cooperation Treaty as mentioned in para 9.
- ☐ The application is divided out of my/our application particulars of which are given in para -10 and pray that this application may be treated as deemed to have been filed on N/A under section 16 of the Act.
- ☐ The said invention is an improvement in or modification of the invention particulars of which are given in para 11.

**13. Following are the attachments with the application: (General Requirements)**

a. Form 2

Item	Details	Fee	Remarks
Provisional Specification		No. of pages: 7	
No. of Claim(s)		No. of claims: 0 and	
		No. of pages: 0	
Abstract		No. of pages: 1	
No. of Drawing(s)		No. of pages: 0	
		No. of drawings: 0	

b. Provisional specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

c. Sequence listing in electronic form

d. Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).

e. Priority document(s) or a request to retrieve the priority document(s) from DAS (Digital Access Service) if the applicant had already requested the office of first filing to make the priority document(s) available to DAS.

f. Translation of priority document/Specification/International Search Report/International Preliminary Report on Patentability.

g. Statement and Undertaking on Form 3

h. Declaration of Inventorship on Form 5

i. Power of Authority

j. Official fee Rs. \_\_\_\_\_ Cheque No. \_\_\_\_\_ Bank \_\_\_\_\_





I/We declare that to the best of my/our knowledge, information and belief the fact and matters stated herein are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this: 31st day of May, 2023 Signature

Name of the signatory TARUN KHURANA[IN/PA-1325]

AGENT FOR THE APPLICANT

Khurana & Khurana, Advocates and IP Attorneys

To,

The Controller of Patents,

The Patent Office, at Chennai

**Department of Physics**

1.



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202141053609 A

(19) INDIA

(22) Date of filing of Application :22/11/2021

(43) Publication Date : 10/12/2021

(54) Title of the invention : LOW TEMPERATURE SYNTHESIS OF NON-TOXIC MONOCLINIC YTTRIUM OXIDE QUANTUM DOTS FOR DISPLAY AND BIOMEDICAL APPLICATIONS

(51) International classification	:B82Y0030000000, G01N0021650000, C09K0011770000, C01F0007000000, G01N0033220000	(71)Name of Applicant : 1)SOORYA G NATH Address of Applicant :DEPARTMENT OF PHYSICS, UNION CHRISTIAN COLLEGE, ALUVA, KERALA, INDIA 683102
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(57) Abstract :

Monoclinic Y2O3 quantum dots were synthesized at low temperature using urea as the fuel. The sample preparation was done using simple laboratory hot air oven and the synthesis temperature was maintained at 90°C throughout the experiment. Prepared samples were characterized using x ray diffraction (XRD), Raman spectroscopy, high resolution transmission electron microscopy (HRTEM), UV- Vis absorption spectroscopy and photoluminescence (PL) Studies. X Ray diffraction graphs had very broad peaks which may be due to the merging of different peaks caused by low particle size and hence could not be used for phase determination. The phase formation was confirmed using Raman spectroscopy and selective area diffraction pattern (SAED). The diffraction rings in the SAED pattern were used to calculate the interplanar spacing of the material. The size of the prepared nanoparticles was measured using HRTEM and the average particle size was found to be 2.4 nm. The bandgap of the material was calculated using Tauc plot and the value obtained was 5.48 eV. Cytotoxicity studies were performed for the prepared sample using MTT assay method on L6 cell lines. The half maximal inhibitory concentration (IC 50 value) of the sample was measured and the value obtained was 194.91 ug/ml. Doped samples were also prepared by the same method using Eu3+ ions as the dopant. Photoluminescence studies were carried out for the undoped and europium doped samples. Strong blue and red emissions were observed in pure and europium doped samples respectively. This shows that the material can have applications in display industry. The present work gives an experimental confirmation for the formation of monoclinic Y2O3 at low temperature when the particle size is extremely small. Also, the cytotoxicity studies pave the way for further investigations on the biomedical applications of the material.

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(54) Title of the invention : NOVEL RARE-EARTH (EUROPIUM OR TERBIUM) DOPED STRONTIUM ALUMINATE NANOPARTICLES FOR FLUORESCENT STAINING OF LIVE PLANTS

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(57) Abstract :

The present invention reports in vivo nontoxic strontium aluminate based fluorescent dyes for live imaging of plants. Terbium doped strontium aluminate (TSA) and europium doped strontium aluminate (ESA) nanoparticles were prepared by microwave assisted solid state reaction at 1100°C. The doped strontium aluminate powder samples were characterized by X-ray diffraction, FTIR (Fourier-transform infrared spectroscopy) studies, and photoluminescence studies. Analysis of the X-ray diffractogram showed that the samples are strontium aluminate with the dominant phase of SnAl<sub>2</sub>O<sub>6</sub> with an average crystallite size of 18 nm and 23 nm respectively for TSA and ESA nanoparticles. FTIR spectrum revealed metal-oxygen bonds corresponding to strontium aluminate. TSA and ESA nanoparticles exhibited green and reddish-white fluorescence respectively on exposure to U V light. The TSA and ESA nanoparticles were incorporated in the plant tissue culture MS medium and *Clitoria ternatea* seeds were inoculated. In vitro, culture studies showed that the strontium aluminate nanoparticles were non-toxic to plants. With the integration of nanoparticles, there was no change in plants' structure or physiological features. Fluorescent imaging studies of plantlets showed an active absorption of nanoparticles through roots. Images of fluorescence microscopy of root and shoot confirmed the presence of fluorescent particles in xylem and pericycle. Plants with in-built fluorescent nanoparticles offer an efficient method to visualize plants fluorescently, bypassing conventional staining procedures. Due to the fluorescence shown by plants with in-built nanoparticles, they can be regarded as Glowing Plants in UV light.

No. of Pages : 15 No. of Claims : 7

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## Incubation and StartUp

Water hyacinth is one of the most invasive water weeds all around the world. Since these weeds have no local competition it's hard to control their growth. So, to be a part of the mission of helping to remove these weeds, we have developed some value-added products. (8 month's project and with the fund of 1.8 lakhs from kerala startup mission granted to Sreeya Kudilil M.Sc Biotechnology student of Bioscience department). The plants have been collected from nearby ponds and fields. The fibre of water hyacinth has great absorption capacity so we have developed organic fertiliser sticks from that and this makes home gardening easier. We also have made handicrafts out of the water hyacinth stalks. They can be made into beautiful baskets, pencil stands, file holders etc.

**Research incubation program team of MG University team visiting our project site**



## Handicraft Items Made from Waterhyacinth Launched by Our Principal









## Fertilizer Sticks Made from Water Hyacinth



## Research Incubation Programme

### Sanction order

12/7/22, 2:55 PM

Gmail - MGU-RINP - Shortlisted Candidates reg.

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Thanks and regards

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