



# THASSIM BEEVI ABDUL KADER COLLEGE FOR WOMEN

An Autonomous Institution Affiliated to Alagappa University, Karaikudi

Accredited with CGPA 3.16 A Grade by NAAC

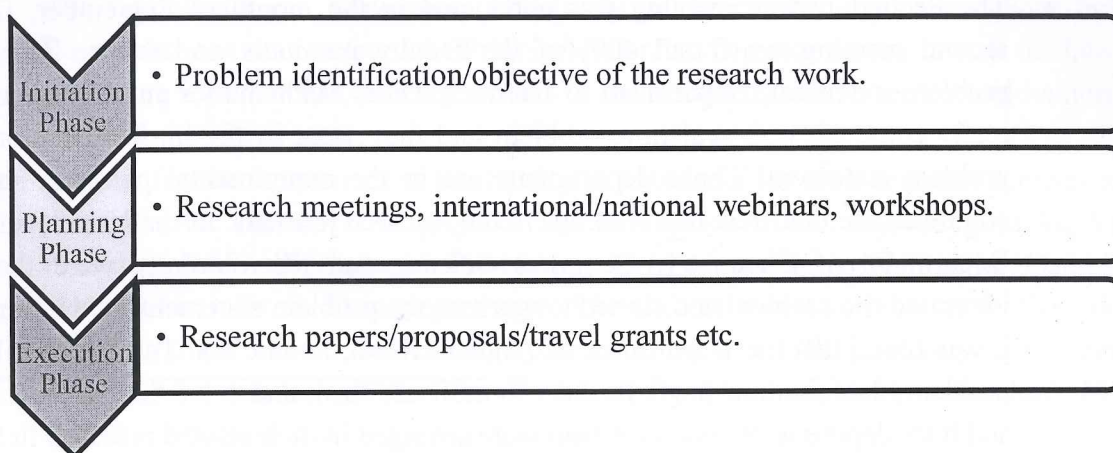
ISO 9001:2015 Certified Institution

Kilakarai, Ramanathapuram District-623517

## CENTRE FOR RESEARCH AND DEVELOPMENT

In order to promote the innovative research amongst faculty members and students at TBAKC, the Director-Academic affairs, Centre for Research & Development, Industry-Institute relations, Professor (Dr). Irfan Ahmed M.S and the Research Head, Dr. Bavya Devi K executed the research activities in the following ways.

The action plan has been executed through the following three phases.



- During the first phase, the objective or need for an hour was identified. This depends on the areas of interest of the faculty. An appropriate response to the need is documented with recommended solution options. Good research practice begins with problem selection and research design.
- To begin with, it was planned to conduct the review meeting monthly for all the Departments, preliminary information's like area of specialization, years of experience before and after joining TBAKC, number of journals published both in international and national, number of projects availed/applied and finally number of patents filed/availed were collected.
- The first review meeting was conducted in the month of August. Based on the review reports, it was found majority of the faculty members find difficulty in identifying the problem statement and in executing the research plan, also no connectivity was seen inside the department, like no inter and intra collaborative research is going on, because research is not the standalone process. It has to be carried out among the department and across the department. In order to encourage the faculty and to get a

crystal-clear idea, the Director has arranged for the research-oriented experts' meeting/discussion, R&D scientists from the various sectors were invited in order to ignite their inquisitive minds.

- Based on the reports of the first review, we have organized two international webinars, one International workshop and one National webinar. For the International webinar, an **International Research Professor, Dr. rer.nat. Suguna Perumal** from **Yeungnam University, South Korea** was invited. She delivered a lecture on "Preparing a scientific manuscript for a target Journal", followed by Dr. Suguna, for the second international webinar, we have invited **Dr. Prabhakar Rontala, Associate Professor**, School of Management, IT & Governance, **University of KwaZulu-Natal, Pietermaritzburg, South Africa**. Prof. Prabhakar delivered a lecture on the topic "Getting started with Research".
- Later, during the month of September, the national webinar was organized. Professor/Dean-Placement **Dr. R. Nadarajan, PSG College of Technology, Coimbatore** delivered a lecture on "Teaching is Reaching". Prof. Nadarajan elaborated the importance and methods of powerful teaching strategies.
- Some faculty members are in search of research supervisors for their doctoral programme. The Director-Research helped the faculty members to identify the research supervisors in their respective areas.
- The Second review meeting was conducted in the month of September, from the second meeting we found 40% of the faculty members are able to identify the problem statement, Department of Home Science, Mathematics and Commerce have really come up with real time problem and they were in the implementation of the problem statement. These departments are in the experimental part and started to communicate their research findings in the research journals. In the Next level, stands Department of Chemistry, Computer Science and Microbiology were they have identified the problem and started to work on the problem statement. In the third level, it was found that the Department of English, Hindi, Arabic and Tamil, are still in the problem identification stage. In order to motivate them and solve their problems, intra and inter departmental collaboration were arranged in their related research fields.
- Later, during the month of October an international workshop was conducted on "Selecting the right journal and understanding the publication process" by **Dr. Sivamani**, Lecturer, Department of Chemical and Petrochemical Engineering, **College of Technology, Salalah, Oman**. This lecture helped the faculty to select the correct journals and helped them to understand the publication process.
- In addition to the above, The Director-Research have motivated the faculty to submit research proposals for various funding schemes. Department of Computer Science and Chemistry have submitted two research proposals for the SERB power projects especially for women community.
- With the continuous support and encouragement, the faculty along with the M.Sc students, (Department of Chemistry-3, Microbiology-1, and Home Science-3) have submitted the proposals to Tamil Nadu State council for Science & Technology.
- Later, during the month of October, major research proposal was submitted to Department of Science and Technology (DST) on the topic "Science and Technology Hub for SC Women Seaweed entrepreneur (ST4SEA)" collaboratively with the Indian

Institute of Technology Bombay and Department of Home science, CSC, Chemistry and Commerce of TBAKC.

- All the faculty was motivated to have strong MoUs with the Central, State and R&D labs for the research purpose. With the continuous support, various MoUs have been registered. Few among them are “**Bhabha Atomic Research Centre**”-(BARC) with **Scientist H-Dr. Kulwant Singh** of Materials Science Division, second one with “**National Institute of Technology**”-(NIT) Trichy, **Dr. Nimmu Chand Regar-Metallurgical and Materials Engg.**, to support the characterisation techniques for the science departments. In order to have successful *in vivo* studies (animal studies) the collaboration with the West Bengal University of Animal and Fishery Sciences-Department of Veterinary surgery and radiology-**Prof. Samit Kumar Nandi, Fellow of Royal Society of Chemistry, UK** were registered.
- In order to encourage the M.Sc and B.Sc students for their final year projects and to support the faculty for their next level of research, two research meeting were conducted with Council of Scientific and Industrial Research–Central Salt and Marine Chemicals Research Institute (CSIR–CSMCRI)-Principal Scientist, Dr. Ganesan for the collaborative projects on seaweeds. Based on the research discussion, the Director-Dr. Irfan agreed to develop some analytical tools for the seaweed cultivation. This tool will help the seaweed cultivators to identify the areas and parameters in which seaweeds can grow more effectively in the coastal areas throughout India. Based on the invitation from the Principal Scientist, Director agreed to visit the labs to gain more ideas on the working models of the seaweeds and to see the cultivation of seaweeds and its process.
- Further, for the betterment of the faculty and students for their research projects and proposals, the collaborative projects was arranged with **Dr. Shanmugam M, Vice President-R&D of Aquagri Processing Pvt.Ltd.** at Sipcot Industrial Complex, Manamadurai. Dr. S. Shanmugam agreed for the collaborative projects on the value-added products like cosmetics and hydrogel for targeted drug delivery applications. Based on the discussions, the Vice President, De. Shanmugam agreed to have MoU with the Department of Home Science, Computer Science and Chemistry.
- During the ISO, audit, the auditor has appreciated the Director Research and the Team for taken various steps to initiate the research activities like review meetings, international/national webinars, various MoUs with reputed institutes/organisation, converting the research papers into products and working on real time research.
- From the third review meeting, it was found that most of the Departments have started to publish papers on the reputed journals and submitted various proposals for the funding. The following **Table 1** shows the list of programs organized from the Centre for Research & Development, **Table 2** shows the list of MoUs signed with the Central, State and R&D labs, **Table 3** shows the list of proposals submitted and **Table 4** shows the list of approved projects.

**Table 1 List of International/National seminars/webinars/workshops organized by the Centre for Research & Development**

S.No	Date	Name of the Programme	Resource Person Details
1	14.09.2021	International Webinar	Dr. rer. Nat.Suguna Perumal International Research Professor School of Chemical Engineering Yeungnam University, South Korea.
2	15.09.2021	International Webinar	Dr. Prabhakar Rontala Subramaniam Senior Lecture School of Management, IT & Governance University of KwaZulu-Natal Pietermaritzburg, South Africa.
3	21.09.2021	National Webinar	Dr. R. Nadarajan Dean-Placement PSG College of Technology Coimbatore, Tamil Nadu.
4	23.10.2021	International Workshop	Dr. S. Sivamani Lecturer Chemical and Petrochemical Engineering College of Technology Salalah, Oman.

**Table 2 List of MoUs signed with the Central, State and R&D labs  
Department of Chemistry**

S. No	Name, Department & Organization
1	Dr. Kulwant Singh Scientist H, BARC, Materials Science Division Bhabha Atomic Research Centre, Mumbai.
2	Prof. Samit Kumar Nandi Professor and Head Department of Veterinary Surgery & Radiology West Bengal University of Animal & Fishery Sciences Kolkata.
3	Dr. Nimu Chand Reger Assistant Professor Department of Metallurgical & Materials Engineering National Institute of Technology Tiruchirappalli.

**Table 3 List of proposals submitted from the Centre for Research & Development**

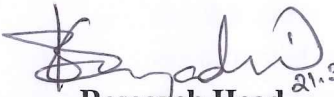
S.NO	TOPIC	NAME OF THE PI & CO-PI	AGENCY	AMT	DATE OF SUBMISSION
1	Biodegradable ceramics for bone tissue engineering applications	Dr. Bavya Devi K	TNSCST	10000	16.09.2021
2	Computational design of adenosine analogous as potent inhibitors of sars-cov-2 main	Dr. A. Suvitha	TNSCST	10000	16.09.2021
3	Novel Technique for Purification of Sea Water using Royal Poinciana and Pongamia Pinnata Stems from Kilakarai	Dr. M. Srimathi	TNSCST	10000	16.09.2021
4	Formulation, nutrient and sensory analysis of iron enriched pasta with turkey berry flour	Ms. K. M. Bhuvanewari	TNSCST	10000	16.09.2021
5	Formulation of substrate for nutrient rich vermicomposting using area specific wastes and studies of the effect	Dr. V. Janaki Devi	TNSCST	10000	16.09.2021
6	Functionally Fermented Palm Sugar Incorporated Beetroot Beverage.	A.shadika R.lakshmishree	TNSCST	10000	18.9.2021
7	Functionally Fermented Palm Sugar Incorporated Beetroot Beverage.	A.shadika R.lakshmishree	TNSCST	10000	18.9.2021
8	Science and Technology Hub for SC Women Seaweed entrepreneur (ST4SEA)	PI- Dr. Pennan Chinnasamy Co-PI- Dr. Sumaya S, Dr. Irfan Ahmed M.S, Dr. Bavya Devi K, Dr. I. Priya, Ms. Geetha.	DST-SEED-STI Hub for SC community	2.12 Cr.	11.10.2021


9	Key Derivation Policy based Cloud Security Environment for Data Security and Privacy	Dr. P. Senthil Kumari	SERB – POWER Grant	26,20,000	14.10.2021
10	An optimized agriculture system for intercrops using IoT and advanced mining techniques.	PI- Dr. Bavya Devi K Co-PI-Dr. Irfan Ahmed M.S and Dr. Sumaya S	DST-SEED-Scheme for Young Scientists and Technologist	2.5 Cr.	01.12.2021
11	Interactive cloud-based OTT platform to connect educators and learners globally.	PI- Dr. Irfan Ahmed M.S Co-PI- Dr. Sumaya S, Dr. Pennan Chinnasamy (IIT Bombay), Dr. Bavya Devi K, Dr. Raj Krishna L (Atom System Pvt Ltd.) and Mr. Sudhakar M (Atom System Pvt Ltd.)	DST-Technology Development Programme	4.5 Cr.	07.01.2022
12	Modernization of laboratories to enhance research and employability opportunities for coastal women community for their sustainable livelihoods.	PI-Dr. Sumaya S Co-PI-Dr. Irfan Ahmed M.S, Dr. Pennan Chinnasamy (IIT Bombay), and Dr. Bavya Devi K	DST-WISE KIRAN Consolidation of University Research for Innovation and Excellence in Women Universities (CURIE)	1.5 Cr.	10.01.2022
13	The detection and analysis of bone growth using intelligent image processing for biodegradable ceramics.	PI- Dr. Bavya Devi K Indian Host Mentor- Dr. Irfan Ahmed M.S Overseas Host Mentor- Dr. Prabhakar Rontala Subramaniam, Associate Professor, University of KwaZulu-Natal, Pietermaritzburg, South Africa.	SERB-International Research Experience (SIRE)	\$ 21,000	29.01.2022
14	Marine derived polysaccharide coated porous magnesium phosphate bioceramics with drug delivery property for biomedical applications.	Dr. Bavya Devi K	TNSCST	4,45,000	01.3.2022

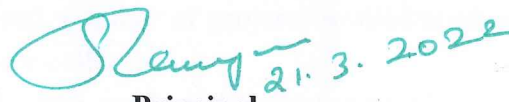
15	Composting Potential of Various inoculum Sources by the Windrow Composting method on Municipal Solid Wastes.	Ms.R.Geetha / Dr.S.Muthumareeswari	TNSCST	5,00,000	10.03.2022
----	--	------------------------------------	--------	----------	------------

**Table 4 List of approved proposals**

S.NO	TOPIC	NAME OF THE PI	AGENCY	AMT (Rs.)
1	Biodegradable ceramics for bone tissue engineering applications	Dr. Bavya Devi K	TNSCST	7500
2	Formulation, nutrient and sensory analysis of iron enriched pasta with turkey berry flour	Ms. K. M. Bhuvaneshwari	TNSCST	7500
3	Formulation of substrate for nutrient rich vermicomposting using area specific wastes and studies of the effect	Dr. V. Janaki Devi	TNSCST	7500
4	Entrepreneurship Development Cell	EDC cell	EIC Hub & IEDP Hub	10000

  
**Research Head**  
 (Dr. Bavya Devi K)

  
**Director Research**  
 (Dr. Irfan Ahmed M.S)

  
**Principal**  
 (Dr. Sumaya S)  
 Principal  
 Thassim Beevi Abdul Kader  
 College for Women, Kilakarai.