

## RESEARCH FORUM 2014-15

To encourage and inculcate research aptitude among students St. Mary's College Thrissur introduced research forum and departments actively encouraged students to participate in various research oriented programs and also to present their works in various seminars. College conducted research motivational talks to the students. Third year degree students and post graduate students from science and arts participated in various research oriented programs

### Powerpoint presentations

Research forum also motivated students of PG departments by giving them an opportunity to present their UG project as PowerPoint presentations which helped them to improve their presentation skills. Interdepartmental presentations are also there which helped the students to know about other related subjects. Science departments, Botany, Biotechnology, Chemistry and Microbiology were giving combined presentations. Department staff Smt. Alby, Smt. Krishna Yathi, Smt. Nithya and Smt. Geenat were in charge and giving students necessary guidance regarding the presentations. Department of History and Economics were also giving combined presentations and the activities are guided by Smt. Gigi and Smt. Jomol. Activities of Commerce department were monitored by Smt. Ranjini. All the PG departments are participating in the program and are giving immense support for the activities of research forum. Details of presentations made by the departments are given below.

### Botany department

Venue: Smart room of Botany department

On 22<sup>nd</sup> Wednesday 2014 Athira Krishnan of our Department presented a paper entitled “ Anthi-helminthic, anti-oxidant and phytochemical screening of *Naravelia Zeylanica*” and she proved that, the areal part of *Naravelia* is highly active against helminthiasis and is a potent anti-oxidant agent.

On 14<sup>th</sup> January 2015 Whylgreen Jose of Botany department presented her BSc thesis “ Anthi-helminthic, anti-oxidant and phytochemical screening of *Stereospermum suaveolens*” and she reported the presence of alkaloids, tannins, carotinoids etc in the leaves of *Stereospermum* and assumed that the presence of which may results its efficacy as prominent anthelmintic and anti-oxidant agent.

## **Microbiology department**

TOPIC: Screening identification and characterization of bacteriocin isolated from wine micro flora

NAME: Akshara k

VENUE: Botany smart class

St.marys College Trissur

DATE : 10-12-2014

As a part of research forum, presentation was held on topic “Screening Identification and Characterization of Bacteriocin Isolated from Wine Microflora”.

- 1.** Bacteriocin are proteinaceous toxins produced by bacteria to inhibit the growth of similar or closely related bacterial strains. They are classified into various class on basis of size. Various methods were adopted. They are ‘isolation of bacteriocin, biochemical identification of the isolated strain’. Then bacteriocin bioassay with cell free supernatant of isolated , partial purification of bacitracin by ammonium sulphate precipitation followed by dialysis. Then detection of bacteriocinogenic activity of partially purified bacteriocin against listeria monocytogens. Followed by the determination of molecular size of bacteriocin and confirmation of its inhibitory property. Characterization of the bacteriocin with respect to physical parameters like pH, temperature, action of enzymes and detergents .Confirmatory assays were also done. Assays are cell viability, protein K activity. Results of each method were presented. Extensive studies have to be conducted in order to explore the bacteriocin diversity and their potential usage. Future perspectives of this work is purification and further characterization of peptides by mass spectrometry ,to confirm the inhibitory effects on gram negative pathogens ,to compare the combinatorial effect of a mixture of bacteriocin against pathogens.

Students were encouraged to present and participate in seminars inside and outside the college.

List of seminars participated by students

Sl.No	Name of Student	Title of seminar	Organized by	Date & Venue
1. 1	AISWARYA.C.P	National Seminar on Emerging Microbial Diseases	Government Arts and Science College, Kozhinjampara.	12 and 13 November 2014 at
2.	ASHNA.V.A	National Seminar on Emerging Microbial Diseases	Government Arts and Science College, Kozhinjampara.	12 and 13 November 2014 at
3.	ASWATHI VENUGOPAL	National Seminar on Emerging Microbial Diseases	Government Arts and Science College, Kozhinjampara.	12 and 13 November 2014 at
4.	ATHEETHA. K.M	National Seminar on Emerging Microbial Diseases	Government Arts and Science College, Kozhinjampara.	12 and 13 November 2014 at
5.	CLINDA PAUL	National Seminar on Emerging Microbial Diseases	Government Arts and Science College, Kozhinjampara.	12 and 13 November 2014 at

6.	FEBA JOSE	National Seminar on Emerging Microbial Diseases	Government Arts and Science College, Kozhinjampara.	12 and 13 November 2014 at
7.	JINI JOY.P	National Seminar on Emerging Microbial Diseases	Government Arts and Science College, Kozhinjampara.	12 and 13 November 2014 at
8.	JISNA DAVIS	National Seminar on Emerging Microbial Diseases	Government Arts and Science College, Kozhinjampara.	12 and 13 November 2014 at
9.	NILEENA.P.V.	National Seminar on Emerging Microbial Diseases	Government Arts and Science College, Kozhinjampara.	12 and 13 November 2014 at
10.	NIVEA WILSON	National Seminar on Emerging Microbial Diseases	Government Arts and Science College, Kozhinjampara.	12 and 13 November 2014 at
11.	SNEHA.K.S	National Seminar on Emerging Microbial Diseases	Government Arts and Science College, Kozhinjampara.	12 and 13 November 2014 at
12.	<b>Karthika S Pallath</b>	<i>National Seminar on Microbes for</i>	Department of Microbiology, St	(21-22 August, 2014.

		<b>Green Environment,</b>	Mary's College, Thrissur,	
13.	<b>Karthika S Pallath</b>	<b>UGC National Seminar on Recent advances in Biotechnology,</b>	St. Joseph's College, Irinjalakkuda,	24-25 September 2014
14.	Dhrisya T.D,	UGC sponsored National Seminar on Recent Advances in Biotechnology.	St. Joseph's College, Irinjalakkuda,	24-25 September 2014
15.	Dhrisya T.D,	UGC sponsored National Seminar on Microbes for Green Environment	St. Mary's College, Thrissur	21-22 August 2014.
16.	Lalji MJ	UGC sponsored National Seminar on Microbes for Green Environment	St. Mary's College, Thrissur	21-22 August 2014.
17.	Hidaya Ummer U,	UGC sponsored National Seminar on Microbes for Green Environment	St. Mary's College, Thrissur	21-22 August 2014.
18.	Aneesa P A	UGC National Seminar on Frontiers in Green Chemistry	St. Mary's College, Thrissur	24-25 July 2014,
19.	Ansiya. A	<b>UGC National Seminar on Recent advances in Biotechnology,</b>	St. Joseph's College, Irinjalakkuda,	24-25 September 2014

List of student presentation inside and outside college

Sl.No	Name of	Title of	Title of paper	Organized	Date
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	Student	seminar		by	&Venue
1.	Karthika S Pallath	<i>UGC National Seminar on Recent advances in Biotechnology,</i>	Biological Properties Of polysaccharides Isolated From The Wood Rotting Mushroom, <i>Ganoderma lucidum</i>	St. Joseph's College, Irinjalakkuda,	24-25 September 2014
2.	Karthika S Pallath	UGC sponsored National Seminar on Microbes for Green Environment	A study on the antimicrobial and antioxidant properties of the wood rotting mushroom, <i>Ganoderma lucidum</i> .	St. Mary's College, Thrissur	21-22 August 2014.
3.	Dhrisya T.D,	UGC sponsored National Seminar on Recent Advances in Biotechnology.	Microbial,Enzymatic and Biochemical Profilesof Ayurvedic Fermentation: Study on Ashokarishta	St. Joseph's College, Irinjalakkuda,	24-25 September 2014
4.	Dhrisya T.D,	UGC sponsored National Seminar on Microbes for Green Environment	Microbial, enzymatic and biochemical profile of ayurvedic fermentation: study on Kanakasava,	St. Mary's College, Thrissur	21-22 August 2014.
5.	Lalji MJ	UGC sponsored National Seminar on Microbes for Green Environment	Screening of soil bacteria and optimization of culture conditions for bioplastic production	St. Mary's College, Thrissur	21-22 August 2014.
6.	Hidaya Ummer U,	UGC sponsored National Seminar on Microbes for Green Environment	Study on the effect of selected variables on siderophore production by <i>Aspergillus niger</i>	St. Mary's College, Thrissur	21-22 August 2014.
7.	Aneesa P A	UGC National Seminar on Frontiers in Green Chemistry	Phytochemical Profiling with Antioxidant and Antimicrobial evaluation of	St. Mary's College, Thrissur	24-25 July 2014,

			Murraya koenigii leaf extracts		
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### **Three day training programme on Hazard Analysis and Critical Control Point concepts**

#### **Biotechnology Department**

On 5<sup>th</sup> November 2014 we the students of 1<sup>st</sup> MSc. Biotech had conducted a project presentation as a part of research forum activity. The members of committee were solemnly present. Students from Microbiology, Biotechnology, Chemistry and Botany also participated in this presentation. The presentation was held on the topic “ROLE OF PURIFIED RED CABBAGE ANTHOCYANIN PIGMENT IN DNA BINDING-DEFENSE MECHANISM, GENE TOXICITY AND APPLICATION IN DSSC” by Nimmy Vincent and Ambili Sasidaran of 1<sup>st</sup> MSc. Biotech. Their project was on Anthocyanin from red cabbage and its role in plant defense mechanism. The novelty in their project was that production of dye-sensitized solar cell (DSSC) from Anthocyanin pigment. They concluded that Anthocyanins have antioxidant and free radical scavenging properties and its role against Hydrogen peroxide.



On 14<sup>th</sup> January 2015 presented the topic “CHARACTERISATION OF *Moringa oleifera* FOR ANTIBACTERIAL ACTIVITY” by Fraya Francis of 1<sup>st</sup> MSc. Biotech. The project was on moringa leaf extract is tested for antibacterial and phytochemical analysis. The methanolic extract showed better result than ethanolic and aqueous extract. Phytochemicals such as phenol, anthraquinone, and terpinoids showed positive result as both three extracts. They concluded that moringa leaf are essential in medicinal properties as well as in Ayurveda.

### **Department of Chemistry**

**TOPIC : “STUDY OF CHEMICAL COMPOSITION OF THE ESSENTIAL OIL FROM THE LEAVES OF WRIGHTIA TINCTORIA”**

#### **Process:** ESSENTIAL OIL EXTRACTION

- The fresh leaves (250g) cut into small pieces and ground to a paste
- Subjected to steam distillation for three hours
- About 2 liters of the distillate were collected
- Extracted with diethyl ether
- Dried using anhydrous sodium sulphate
- Chemical composition of the leaf essential oil was analyzed by GC-MS

**Conclusion:** GC-MS analysis of the essential oil isolated from the leaves of *Wrightia tinctoria* by steam distillation, resulted in the identification of thirty seven known compounds.



Uses: *Wrightia tinctoria* is a medicinal plant; it is known to be used for psoriasis and other skin diseases.

*Presented by,*

**SNEHA DOMINIC** 1<sup>st</sup> MSc. Chemistry

## **EXTRACTION OF CAFFEINE AND COMPARISON OF CAFFEINE CONTENT IN VARIOUS ENERGY DRINKS**

Caffeine is the very common substance that found in coffee, tea, soft drinks etc. Caffeine belongs to a group of compound known as alkaloids. Consumption of caffeine becomes advantageous as well as disadvantageous. Caffeine becomes addictive to humans caffeine may cause decrease in blood pressure, head aches etc. but in otherwise caffeine is used in the treatment of migraines, and asthma relief.

We are using 2 methods (1) Extraction of caffeine from tea (2) comparison of caffeine content in various energy drinks in the extraction of caffeine from Tea, we got 0.65 gm. caffeine from 50 gm. of tea powder. After that, we had compared caffeine content in various energy drinks by using double beam spectrophotometer. From the spectra of them, we can understand coffee and tea show maximum absorbance. But coffee contains a little caffeine content more than tea. They are 9.92 and 9.81 respectively. But while comparing some soft drinks such as limca, cococola, & thums – up, 7 up, sprite and fanta, cococola contains more caffeine content. That is, it shows absorbance of 4.22. But, Limca and thums-up have comparable amount of caffeine. Among the above soft drinks sprite, contains minimum amount of caffeine.

The above comparison shows that the caffeine content in the soft drinks is less than half of that in the tea or coffee.

So through our project, we could understand the various effects of caffeine. Various reports show that caffeine can cause health hazards and some new studies and research show that caffeine helps us to improve verbal processing speed, muscle strength etc.

PRESENTED BY

**ANISHA ANTONY.K**, 1<sup>st</sup> MSc. Chemistry

### **DETERMINATION OF REDUCTING SUGAR IN DIFFERENT JUICES**

In this science fair project we will measure the concentration of glucose in variety of foods. The goal of this project is to determine the reducing sugar content in five different fruits. We determined the amount of reducing sugar by Iodimetric titration, in which starch is used as an indicator.

#### **EXPERIMENT:-**

After the preparation of fruit juice titrate it against sodium thiosulphate until the blue starch – iodine complex colour is just discharged. Blank titration is done exactly the same way by using water in place of sample.

#### **OBSERVATIONS:-**

Amount of sugar content in	orange juice	14.5 ml
	Pomegranate	0.25 ml
	Carrot	22.3 ml
	Tomato	3.75 ml
	Musambi	10.6 ml

We have found that in carrot juice sugar content is very high and in pomegranate juice sugar content is very low. We can adopt pomegranate and tomato for sugar patients. Sugar patients must avoid the remaining fruits in our daily life we eat different types of fruits. But no one is aware about how its sugar content affects our body from this experiment we got a general awareness about the sugar content in different fruits.

PRESENTED BY

**HARITHA JOHNS**, 1<sup>st</sup> MSc. Chemistry

**Department of History**

5/11/2014

Research Forum for students- As a part its activities Students of II M.A delivered PPT presentation based on their UG project on 5<sup>th</sup> November 2014

Midhu dasan-Local history of viyyur

Sruthy P.M-Kadar community at Athirambilly

12/11/2014

On 12<sup>th</sup> November 2014 In connection with student's research forum activities Students of II M.A delivered PPT presentation based on their UG project Suchitra K.G and sayana students of second M.A delivered PPT presentation on their U G Projects.

19/11/14

As a part of Student's research forum activities , Manjary karthy and jancy K.J ,second P.G students shared their U G project findings with other students.



03/12/2014

On 3<sup>rd</sup> December 2014 In connection with student's research forum activities Student leaders of I M.A students conducted panel discussion and they presented several new ideas through the discussion . The student leaders are Prajitha K.V and Shyamal silbi

10/12/2014

Research forum members of History distributed e-journal copies to the degree students and they convey the ideas of that particular articles

07/01/2015

The students of M.A History discussed about the different research areas of History and give a new impetus to the U.G students .



### Research oriented Talks

No	Department	Resource Person	Topic	Date
1	Biotechnology	Dr. T Ramanathan, Annamalai University, Chennai	Bioprospecting of marine bioresources with special reference to coastal flora	11.8.14
2	Botany	Dr. Mohandas, Scientist, KFRI	<input type="checkbox"/>	4-2-2014

			Forest and its role in sustaining life	
3	Biochemistry	Dr. Ambili Mechoor, Professor and HOD, Department of Biotechnology Engineering, Sahrdaya college of Engineering and Technology, Kodakara,	“Linking Biochemical Pathway: A molecular approach”	26 <sup>th</sup> November 2014



**Motivational talk by Dr. Ambili Mechoor**

**Department of Vocational Studies (B.Voc)**

<b>Academic Year 2014-15</b>		
<b>Month</b>	<b>Activities</b>	<b>Action Taken</b>
September	➤ B.Voc Forum ( Awareness Class )	Conducted an awareness forum about B.Voc for the students and their parents those who are interested to join B. Voc on 23-09-2014
December	➤ Expert Classes	Mr. Sandeep Kurup, CEO, icon-e Solutions, Thrissur on 01/12/2015 Mr. Nihinth Nath, Senior Programmer, Wi3 Solutions on 5-12-2015

January	➤ Expert Classes	Mrs. Fini Viji, Wi3 Solutions, Thrissur on 14-01-2015 on the topic 'C Functions'.
March	➤ Expert Class - Multimedia	Mr. Subramanian K. R., St. Thomas College, Thrissur on 30-03-2015 on the topic 'Drawing Concepts'

### Department of Psychology

Students were encouraged to do research by conducting various activities. Journal presentations, Participation and presentations in various seminars are among them.

#### List of seminars participated by students

Sl No:	Name of the student	Seminar/workshop (subject oriented)	Date and Venue	International/national/state/regional
1	Anuja John	Protection Of Human Rights of the Psychologically Ill  Couple Therapy	27/06/2014 Vimala College, Thrissur  19/02/2015 Jubilee Mission Medical College & Research Institute, Thrissur	National
2	Biji George	Protection Of Human Rights of the Psychologically Ill	27/06/2014 Vimala College, Thrissur	National

		Couple Therapy	19/02/2015 Jubilee Mission Medical College & Research Institute, Thrissur	
3	Lincy Mathew	Protection Of Human Rights of the Psychologically Ill  Couple Therapy	27/06/2014 Vimala College, Thrissur  19/02/2015 Jubilee Mission Medical College & Research Institute, Thrissur	National
4	Ponmany Stephenie Satish	Protection Of Human Rights of the Psychologically Ill  Couple Therapy	27/06/2014 Vimala College, Thrissur  19/02/2015 Jubilee Mission Medical College & Research Institute, Thrissur	National
5	Sruthi E. P	Protection Of Human Rights of the Psychologically Ill  Couple Therapy	27/06/2014 Vimala College, Thrissur  19/02/2015 Jubilee Mission Medical College & Research Institute, Thrissur	National
6	Jasmin.V	Skills Approach to Information And Communication Technology For Information Problem Solving	02-03/01/2015 St. Mary's College, Thrissur	National
7	Kamila Thasneem.T	Skills Approach to Information And Communication Technology For	02-03/01/2015 St. Mary's College, Thrissur	National

		Information Problem Solving		
8	Mazna Majeed	Transforming Malayali Family: Contemporary Psychological Experiences  Skills Approach to Information And Communication Technology For Information Problem Solving	11/11/2014  SCAM Govt College, Kuttanellur  02-03/01/2015 St. Mary's College, Thrissur	Regional
9	Rinitha.M.H	Transforming Malayali Family: Contemporary Psychological Experiences  Skills Approach to Information And Communication Technology For Information Problem Solving	11/11/2014  SCAM Govt College, Kuttanellur  02-03/01/2015 St. Mary's College, Thrissur	Regional
10	Theresa Ouseph	Skills Approach to Information And Communication Technology For Information Problem Solving	02-03/01/2015  St. Mary's College, Thrissur	National

List of student presentation inside and outside college

Sl No	Name	Title of the Paper	Event	Date	Venue
1	Theresa Ouseph	Kudumbasree And Woman Empowerment	Sr. Dr. Rani George Endowment Lecture & Paper Presentation Competition	12/12/2015	St. Mary's College, Thrissur

Journal presentations

Sl. No	Date	Name of the Student	Class	Topic
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1	04/06/2015	Anuja John	2 <sup>nd</sup> PG Psychology	To study Behaviour Pattern of Agriculture Labourers During working time using Systematic Observation
2	04/06/2015	Biji George	2 <sup>nd</sup> PG Psychology	To Identify The Perspective of Religious Life among Students using Interview Method
3	11/06/2015	Lincy Mathew	2 <sup>nd</sup> PG Psychology	To Study The Major Needs Seen In The Novel 'Aadujeevitham' on The Basis of Major Press And Themes Using Content Analysis.
4	11/06/2015	Ponmany Stephenie Satish	2 <sup>nd</sup> PG Psychology	To Explore Consistent Traits in Amul Girl's Personality and Ideological make up in various Amul Advertisements Using Content Analysis
5	18/06/2015	Sruthi E. P	2 <sup>nd</sup> PG Psychology	To Study the Emotions of College Students in bus by Observing their Facial Expressions