



**ANNASAHEB DANGE
COLLEGE OF
B.PHARMACY,ASHTA**

ADCBP

ADCBP E-NEWSLETTER 2021-22



**volume- 5
Issue-I**

Contact Us

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Our Inspiration

84 Years of Social Excellence



- Former Minister for Rural Development, Water supply, Social Welfare, Maharashtra State.
- Founder of 41 educational institutes with best track record.
- Best Parliamentarian award for best speech on the floor of the house.
- Author of Various inspiring books.

Hon. Shri. Annasaheb Dange
Founder

Sant Dnyaneshwar Shikshan Sansthas
ANNASAHEB DANGE COLLEGE OF B.PHARMACY, ASHTA

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EDITORIAL BOARD

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Dr.M.G.Saralaya

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VISION

“To create competent pharmacy professionals who can efficiently contribute for the healthcare system of society and to the pharmacy profession.”

MISSION

- 1) To provide student centric active innovative learning environment with strategically planned quality pharmacy education consistent with the policies of state and nation.
- 2) To nurture and inculcate the team spirit, research, innovation, creativity and entrepreneurship.
- 3) To strengthen Industry - Institute and Institute – institute interaction for the overall development of students.
- 4) To help the students to disseminate acquired knowledge through the fullest commitment for health care services.

Editor's Message



Prof. Dr. Mahesh. G. Saralaya
Professor and Principal,
Annasaheb Dange College of B. Pharmacy, Ashta

It gives me an immense pleasure to present before you **ADCBP E- Newsletter, Volume-5, Issues-I, 2021-2022**, proudly with its unique creation in the form of the Bi-Annual news which serves as a platform to highlight the literary and artistic segment of the ADCBP- family.

It was quite inspiring to watch and witness the potential of our students/staff unfolding at various stages and situations each day. ADCBP Newsletter carries the contributions reflecting ethos and aspirations of the students, faculty and other team members of the institution. ADCBP Newsletter brings to light the names of the unsung heroes and their mighty deeds. I am happy that there is a dedicated team of staff and students who have presented the astonishing achievements of ADCB Pians in the fields of academics, research, sports and extra-curricular activities.

The management and the staff have been supportive of the various activities that were undertaken by the students in view of helping them reach the pinnacle of perfection and professionalism in whatever task they took on thus strengthens our journey of achieving excellence. There is nothing... absolutely nothing that stops the ADCBP juggernaut from rolling forward, going on boldly from one project to another leaving the spectators spell-bound. Everything that ADCBP touches turns into gold.

The ADCBP Newsletter is presenting a glimpse of the growth of the institution on many fronts. The college has been simply unstoppable in its progress as it has been actively involved in various activities that have brought to light the hidden talents of the college students and staff. The highly qualified and dedicated members of staff have always stood shoulder with the Principal and it is always a pleasure to be a part of a team which strives to bring out the talents of students.

Congratulations to Ms. Shailaja Desai (Dept. of Pharmaceutical Chemistry) and Mr. Swapnil Patil (Dept. of Pharmaceutical Chemistry), Co-editor/ Co-ordinator of ADCBP Newsletter and my team for their determined efforts in bringing out this Newsletter.

Co-editor's Message



Ms. Shailaja P. Desai
Assistant Professor
Department of Pharmaceutical Chemistry

Dear ADCBP Students and Readers; Welcome to **E-Newsletter, Volume-05, Issues-I, 2021-2022**. It is with great pleasure that I am here to welcome you to **ADCBP E-newsletter Volume-05, Issues-I, 2021-2022**. It gives me immense pleasure in bringing out the E-newsletter. The **e- newsletter** has includes academic excellence, students achievements, scientific articles, extra-curricular activities and events organized by the institute.







I would like to express our sincere thanks to Respected Principal Sir, **Prof. Dr. Mahesh G. Saralaya** for giving us an opportunity and reliable guidance to Co- ordinate this e-newsletter. I also thank our colleagues, students and staff for their co- operation, support and encouragement during compilation of this e-newsletter.

Once again, I would like to thank all of those individuals who are, or have been, associated with the E-newsletter and we look forward to many more of publishing the E-newsletters in the future. Suggestions and Criticism for further improvement will be welcome.

I hope you all enjoy reading it as much as we do.

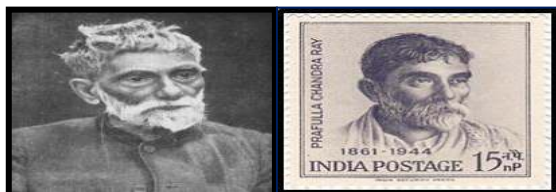
E- BULLETIN COMMITTEE

STUDENT COORDINATORS:

STUDENT EDITOR : Ms. Mali Bhagyashree R				
SEMESTER	NAME		NAME	
Sem I	Mr.Herwade Harshal A.		Ms.Kalyani Sakshi Y.	
Sem V	Mr.Chaus Rehan			
Sem VII	Ms.Jadhav Pallavi			
Sem III	Ms. Arpita Jamdade			

GESTURE TO PROFESSION

A TRIBUTE TO LATE ACHARYA PRAFULLA CHANDRA RAY



Prafulla Chandra Ray was a chemist, educationist, historian, industrialist, philanthropist, and nationalist. He is known as “**Father of Indian Chemistry**”, He was a well-known Indian scientist and teacher and one of the **first “modern” Indian chemical researchers.**

Birth: 2 August 1861, Raruli-Katipara, Jessore District, Bengal Presidency, British India

Death: 16 June 1944. Calcutta, Bengal Presidency, British India.

❖ **EDUCATION:**

- Hare School, Calcutta. 1871
- Albert School, Calcutta, 1876
- FA degree, Metropolitan Institution, Calcutta, 1878
- FA degree (chemistry) from Presidency College, Calcutta, 1878
- BA from University of Calcutta, 1881
- B.Sc. from University of Edinburgh, UK, 1885

❖ **CONTRIBUTION & ACHIEVEMENTS:**

- Joined as junior professor of Chemistry at the Presidency College, Calcutta in 1889.
- Discovered a new stable compound mercurous nitrite (1896)
- Synthesized Ammonium nitrite in pure form through double displacement ammonium between chloride and silver nitrite
- **Established “Bengal Chemical and Pharmaceutical Works Ltd”, 1901, India’s first pharmaceutical company.**

Published “A History of Hindu Chemistry from the Earliest Times to the Middle of Sixteenth Century”

in two volumes in 1902 and 1908.

- Retired from Presidency College and joined Calcutta University (1916)

- was elected as the Indian Science Congress President (1920)
- Established Indian chemistry Research School and Indian Chemical Industry

❖ **RECOGNITION:**

◆ **Medals and Awards:**

- Faraday Gold Medal of the University of Edinburgh (1887)
- Companion of the Order of the Indian Empire (CIE; 1912 Birthday Honours list)
- Knight Bachelor (1919 New Year Honours list)
- Academic Fellowships and Memberships:
- Fellow of the Royal Asiatic Society of Bengal (FRASB)
- Fellow of the Chemical Society (FCS; 1902)
- Honorary Member of the Deutsche Akademie, Munich (1919)
- Foundation Fellow of the National Institute of Sciences of India (FNI; 1935)
- Fellow of the Indian Association for the Cultivation of Science (FIAS; 1943)
- **Honorary doctorates:**
- Honorary Doctor of Philosophy degree from the University of Calcutta (1908).
- Honorary D.Sc. degree from Durham University (1912)
- Honorary D.Sc. degree from Banaras Hindu University (1920)
- Honorary D.Sc. degree from the University of Dhaka (1920 and 28 July 1936) & Honorary D. Sc. degree from the University of Allahabad

ACADEMIC EXCELLENCE

MERITORIOUS STUDENTS

Class: Final Year B. Pharm. Sem VII		
Rank Number	Name of Student	CGPA
1	Chavan Snehal Mahadev	9.09
2	Doijad Shital Ravindra	8.95
3	Pange Prathamesh Sanjay	8.91
4	Dudhal Ravindra Ramchandra	8.88
5	Nadaf Zinat Shamashuddin	8.87
Overall Result Analysis		
Sr. No.	Particular	No. of Students
1	First Class with Distinction (≥ 7.5)	106
2	First Class (6.0 – 7.49)	9
3	Second Class (5.0 – 5.99)	0
4	Fail ATKT	0
5	Total No. of Students	115
6	% of Passing	100

Class: Third Year B. Pharm. Sem V		
Rank Number	Name of Student	CGPA
1	Mohite Shreya Sharad	9.40
2	Nangare Shruti R	9.36
3	Kadam Chaitali Vijay	9.31
4	Mane Anand Gangaram	9.30
5	Gurav Dnyaneshwari	9.19
5	Momin Saniya Javed	9.19
Overall Result Analysis		
Sr. No.	Particular	No. of Students
1	First Class with Distinction (≥ 7.5)	118
2	First Class (6.0 – 7.49)	1
3	Second Class (5.0 – 5.99)	0
4	Fail ATKT	2
5	Total No. of Students	121
6	% of Passing	98.35

Class: Second Year B. Pharm. Sem III

Rank Number	Name of Student	CGPA
1	Dhabugade Abhijeet Suresh	9.64
2	Jamadade Arpita Rajaram	9.63
3	Jagtap Aditi Shivaji	9.61
3	Kulkarni Shivam Amol	9.61
4	Patil Vaishnavi Adhikrao	9.6
5	Chavan Akash Bhojaling	9.56
5	Mohite Aarti Tanaji	9.56

Overall Result Analysis

Sr. No.	Particular	No. of Students
1	First Class with Distinction (≥ 7.5)	124
2	First Class (6.0 – 7.49)	3
3	Second Class (5.0 – 5.99)	0
4	Fail ATKT	0
5	Total No. of Students	127
6	% of Passing	100

Class: First Year B. Pharm. Sem I

Rank Number	Name of Student	CGPA
1	Mushrif Mohammadatif R.	9.59
2	Shinde Kiran Sampat	9.44
3	Kokil Tejaswini Dilip	9.41
4	Mohite Sakshi Dilip	9.37
5	Gouraje Omkar Rajandra	9.31
5	Pathan Jainab Abdulmujib	9.31

Overall Result Analysis

Sr. No.	Particular	No. of Students
1	First Class with Distinction (≥ 7.5)	109
2	First Class (6.0 – 7.49)	03
3	Second Class (5.0 – 5.99)	0
4	Fail ATKT	01
5	Total No. of Students	113
6	% of Passing	99.12

FEATHERS ON THE CROWN

CONFERENCES/SEMINARS/WORKSHOP ATTENDED BY FACULTY MEMBERS

- + Dr. Tamboli E. T. (Delegate) attended Two-Week Online Faculty Development Programme on “Emerging Trends and Challenges in Techno-stabilization of Pharmaceuticals’ organized by Bharti Vidyapith college of Pharmacy,Kolhapur on 18-30 October, 2021.
- + Mr. Sajane S. J. (Delegate) attended Two-Week Online Faculty Development Programme on Intellectual Property Rights organized by E & ICT Academy IIT Guwahati (online) on 25 - 30 October, 2021.
- + Dr. Jagtap R. S. (Delegate) attended Two-Week Online Faculty Development Programme on Intellectual Property Rights organized by E & ICT Academy IIT Guwahati (online) on 25 - 30 October, 2021.
- + Ms. Desai S. P. (Delegate) attended Two-Week Online Faculty Development Programme on Intellectual Property Rights organized by E & ICT Academy IIT Guwahati (online) on 25 - 30 October, 2021.
- + Ms. Kharat S. S. (Delegate) attended Two-Week Online Faculty Development Programme on Intellectual Property Rights organized by E & ICT Academy IIT Guwahati (online) on 25 - 30 October, 2021.
- + Mrs. Gaikwad P. S. (Delegate) attended Two-Week Online Faculty Development Programme on Intellectual Property Rights organized by E & ICT Academy IIT Guwahati (online) on 25 - 30 October, 2021.
- + Mr. Mote G. D. (Delegate) attended Two-Week Online Faculty Development Programme on Intellectual Property Rights organized by E & ICT Academy IIT Guwahati (online) on 25 - 30 October, 2021.
- + Ms. Momin Y. H. (Delegate) attended Two-Week Online Faculty Development Programme on Intellectual Property Rights organized by E & ICT Academy IIT Guwahati (online) on 25 - 30 October, 2021.
- + Mr. Chavan P. V. (Delegate) attended One-Week Online Faculty Development Programme on Induction of Novice Pharma Academicians organized by TKCP, Warananagar(online) on 22 -27 November,2021.
- + Ms. Jagtap N. M. (Delegate) attended One-Week Online Faculty Development Programme on "Nutrigenomics Unveiled Frontier in Healthcare"organized by Bharati Vidyapeeth College of Pharmacy, Kolhapur on 23 -27 November, 2021.
- + Mr. Honmane S. M. (Delegate) attended Two-Week Online Faculty Development Programme on Intellectual Property Rights organized by E & ICT Academy IIT Guwahati (online) on 25 - 30 October, 2021.
- + Ms.Kharat S.S. (Delegate) attended One-Week Online Faculty Development Programme on Induction of Novice Pharma Academicians organized by TKCP, Warananagar(online) on 22 -27 November,2021.

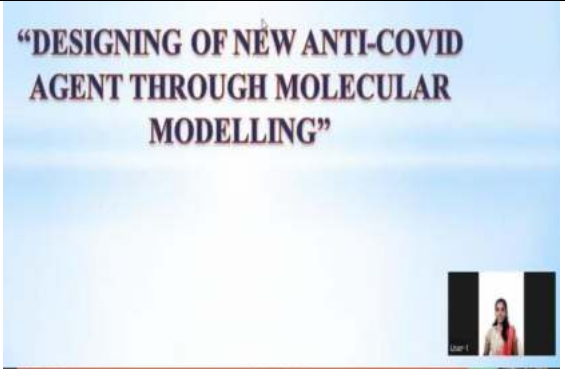
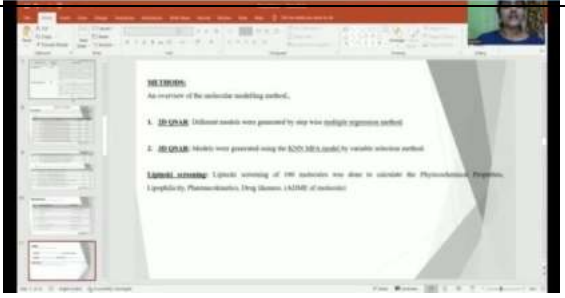
CONFERENCES/SEMINARS/WORKSHOP/QUIZ COMPETITION

ATTENDED BY STUDENTS

- ✚ Apurva Jitendra Shipekar (Delegate) attended one day Online course on “Emerging Trends and Challenges in Techno-stabilization of Pharmaceuticals’ organized by Opex India on 05 October, 2021.
- ✚ Santosh Vishnu Bhosale participated in QUIZ Competition organized by Appasaheb Birnale college of pharmacy Sangli on 25th September, 2021.
- ✚ Shinde Abhay Laxman participated in QUIZ Competition organized by Department of Chemistry, Sakthi College of Arts and Science for Women, Oddanchatram, on 6th November, 2021.
- ✚ Ubed Tamboli participated in QUIZ Competition organized by Department of Chemistry, Sakthi College of Arts and Science for Women, Oddanchatram, on 6th November, 2021.
- ✚ Pushpalata Sunil Jundale participated in QUIZ Competition organized by Ministry of Skill Development &Enterprenurship& My Gov, on 26th August, 2021.
- ✚ Shreya Pravin Shinde (Delegate) attended One day webinar on Intellectual Property Rights organized by Indian institute of digital education on 25 - 30 October, 2021.

CONFERENCES/SEMINARS/WORKSHOP ATTENDED BY STUDENTS

5th Semester and 7th semester students participated in Avishkar online paper presentation competition sponsored by Shivaji University, Kolhapur in various aspects. The results are as follows:

Event	Prize	Name of Student(s)	Sem	
Paper presentation	1 st Prize	Ms.Aradhana Vaydande	VII	
Paper presentation	3 rd Prize	Ms.Shradha Todkar	VII	

PUBLICATIONS

Annals of Phytomedicine 10(2): 327-334, 2021

Formulation, characterization and evaluation of *in vitro* antioxidant potential on melatonin and quercetin loaded liposomes

*Veerendra C.Yeligar¹, Manjiri A. Rajmane^{**}, Yasmin H. Momin^{*} and Rajendra C. Dojjad^{*}*

Abstract

The aim of the work was to use the thin film hydration process under vacuum condition to synthesize liposome loaded with melatonin and quercetin, as well as to improve the bioavailability of melatonin and quercetin from liposome. Phosphatidyl choline, cholesterol ratio, pH of hydration medium, rotating speed, and volume of solvent system were investigated as parameters impacting the entrapment of melatonin and quercetin liposome for formulation optimization. The result revealed that the max of the melatonin and quercetin was at 276 and 372 nm, respectively. The size of optimized liposome formulation was 43.25 nm by FESEM having a zeta potential of -26.4 mV. Average particle sizes were found to be 1109 nm and PDI of 0.624. The drug entrapment efficiency was found to be 58.56% and 95.03% for melatonin and quercetin, in respectively. The percentage drug release respectively for melatonin and quercetin was 68.1% and 79.5% in 24 h, respectively. The IC₅₀ value of melatonin and quercetin for DPPH inhibition was found to be 9.315 µg/ml and 6.261 µg/ml, respectively and for synthesized liposome 5.64 µg/ml. Finally, the results concluded that the prepared liposome could be used as controlled drug delivery system that provided the better bioavailability and antioxidant activity as compared with the standard ascorbic acid, quercetin and melatonin.

Keywords – Antioxidant, Entrapment efficiency, Liposome, PDI, Zeta potential, FTIR

Annals of Phytomedicine 10(2): 273-279, 2021

Evaluation of potential *in vitro* anticancer and antimicrobial activities of synthesized 5-mercapto-4-substituted 1, 2, 4 triazole derivatives.

Shailaja P. Desai, Yasmin H. Momin, Sneha T. Taralekar, Yuvraj D. Dange, Sneha R. Jagtap and Harshad P. Khade

Abstract

A series of 1, 2, 4-triazole derivatives (5a1-5a10) were synthesized and evaluated for its *in vitro* anticancer activity. In the present investigation, nicotinic acid refluxed with ethanol to form an ester which further refluxed with hydrazide in alcohol to form an intermediate product carbohydrazide. Finally, this intermediate was condensed and different types of azole derivatives were formed. The synthesized compounds were confirmed through spectral characterization using IR, NMR and MASS. Thereafter, *in vitro* anticancer activity was performed for synthesized compounds against MCF-7 (Human breast cancer cell line) by MTT assay method using standard 5-Fluorouracil. The labeled compound 5a1 was found to be the most active than others. Thereafter, compounds 5a2, and 5a5 showed appreciable anticancer activity against MCF-7 breast cancer cell line. Furthermore, antimicrobial activity with respect to antibacterial and antifungal activities were performed and showed significant antimicrobial properties with 5a1 and 5a2 when compared with standard ciprofloxacin and fluconazole, respectively. Finally, result concluded that azole derivatives showed potential anticancer and antimicrobial activity synthesized from carbohydrazide.

Keywords - 1, 2, 4-triazole, Anticancer activity, 5-Fluorouracil, MCF-7, MTT assay.

Evaluation of Nootropic Activity of *Limonia acidissima* Against Scopolamine induced Amnesia in Rats

Kailas K MALI^{1*}, Guruprasad V SUTAR², Remeth J DIAS³, Omkar A DEVADE¹

Abstract

Objectives : The present study aimed to evaluate the nootropic activity of *Limonia acidissima* in rats.

Materials and Methods: Methanolic extract of *Limonia acidissima* was used to evaluate nootropic activity, piracetam (200 mg/kg, i.p.) was used as a standard, and scopolamine (1 mg/kg, i.p.) was used to induce amnesia. The effect of drugs on learning and memory in rats was evaluated by using the Y-maze task and elevated plus maze on scopolamine-induced amnesia models. Locomotor activity was performed using an actophotometer. Also, levels of acetylcholinesterase, including histopathological examination of rat brains, were assessed. **Results:** Methanolic extract of *Limonia acidissima* showed increased alteration of the behavior response and percentage spontaneous alteration with the Y-maze task. In the elevated plus maze scopolamine-induced amnesia model, methanolic extract of *Limonia acidissima* showed a decrease in transfer latency, which is indicative of cognition improvement. Methanolic extract increased locomotor activity in rats and decreased the levels of acetylcholinesterase enzyme significantly. A histopathological study with both low and high doses of extract showed effective regenerative scores as compared to normal control, negative control and standard treatment. **Conclusion:** The results suggested that the administration of methanolic extract of *Limonia acidissima* enhances learning and memory in different experimental models. The histopathological study revealed the neuroprotective property of the extract. The study indicates that the extract may be used in the treatment of Alzheimer's disease.

Key words: Nootropic activity, *Limonia acidissima*, Alzheimer's disease, piracetam, scopolamine

GLIMPSE OF GUEST LECTURES/WORKSHOP ORGANIZED



Guest lecture by Alumni Mr.Suraj Gurav



Workshop by Health Pharma IT IKYA



Workshop by Rubicon Pvt.Ltd,Pune



GPAT/NIPER Prepration: Consistency and Success with our GPAT/NIPER Qualified Alumini.



Workshop by Skillogic, Sangli



Guest Lecture on World Mental Health Day

EVENT ORGANIZED**VACCINATION DRIVE**

In the view of Covid-19 pandemic, Annasaheb Dange College of B.Pharmacy, Ashta has organized vaccination drive in collaboration with Hon. Shri. Annasaheb Dange Ayurveda Medical College, Post Graduate & Research Centre, Ashta for students and faculties in order to keep them protected from Corona Virus. Around 57 participants were given with Covishield & Covaxinas 1st & 2nd dose as per their vaccination schedule and were asked to follow the suggestions as per Doctor's advice.

Chairman Shri. Annasaheb Dange, Secretary Adv. Rajendra Dange, Executive Director, Prof. R. A. Kanai, Sant Dyneshwar Shikshan Sanstha, Islampur, Principal Prof (Dr.) M. G. Saralaya Principal, ADCBP, Prof (Dr.) A. G. Wali Principal, ADAM have given their full support to the vaccination programme in every way. Around 11 staff members & 46 students have taken their 1st or 2nd dose Covishield/Covaxin. Finally, Mr. H. P. Khade Asst. Prof. propose vote of thanks. Total 57 participants including teaching staff, non-teaching staff & students was taken benefits of vaccination drive.



TREE PLANTATION

On the occasion of 85th Birthday of Hon. Founder Annasaheb Dange, we organized "Tree Plantation Celebrated on 24th June, 2021 with great zest and enthusiasm at our Annasaheb Dange College of B.Pharmacy Ashta campus as a part of our duty for the green India and better environment for the future. All the teaching/non-teaching and students have performed the tree plantations and pledged for clean/greenery India.



WORLD MENTAL HEALTH DAY PROGRAM

Annasaheb Dange college of B.Pharmacy,Ashta had organized an; **World Mental Health Day Program** on **Monday, 11th October 2021** for the all year students. Respected Principal Sir given the brief welcome note regarding to the program. Mr. R. D. Mali introduced resource person Mr. KapilLalit Sir. Mr. Kapil Lalit Sir taught on *Emotional Literacy Missing Piece of Education*. Sir explained education is the capacity to make informed choices & our ability to read and understand our emotional states and most importantly to pick up the multi-dimensional skills and courage to act on them. Sir also explained many examples regarding mental health;Swami Vivekananda said that “Education is the manifestation of the divinity that is already present in man”.



HEALTH CHECK UP CAMP

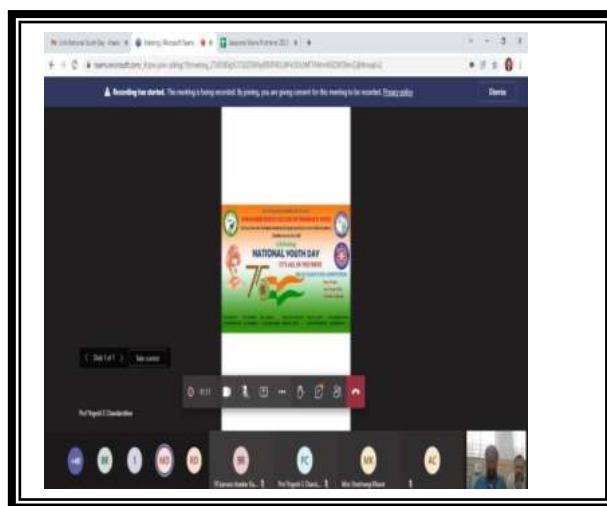
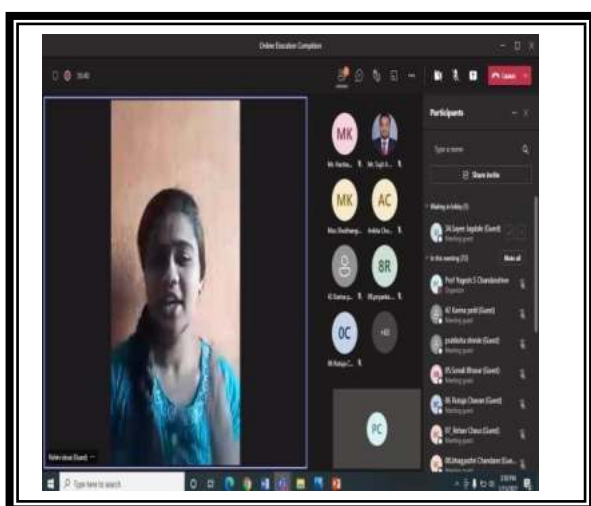
A Medical Health Checkup Camp for Faculty & Staff were organized on 9th& 10thDecember, 2021 at Annasaheb Dange College of Pharmacy, Ashta. Camp was organized in association with Hon. Shri. Annasaheb Dange Ayurveda Medical College, Post Graduate & Research Centre, Ashta. The 10 team members of Hospital including one Physician, One Cardiologist and One Gynecologist arrived at the College at 10.00 AM. Principal Prof. (Dr.)M. G. Saralaya, ADCP, Ashta presented the flowers to Dr. Wali Sir & team members and he discussed various issues of health with the Doctors. Physical examination along with Blood Sugar, Blood Pressure, Lipid Test and ECG tests were provided by the Hospital. Hon. Shri. Annasaheb Dange Ayurveda Medical College, Post Graduate & Research Centre, Ashta also given 50% discount on remaining other diagnosis tests in their Hospital.



NATIONAL YOUTH DAY

This day was first declared as National Youth Day in 1984 by the Government of India to pay tribute and honour the teachings of Vivekananda. Since then, Rashtriya Yuva Diwas is celebrated all across the country. People all across the nation celebrate this day as a festival.

Annasaheb Dange College of Pharmacy was celebrated **National Youth Day** on 12th January, 2022 to highlight the youths who are the future of our country and to commemorate the birth anniversary of Swami Vivekananda who always motivated the youth of the country and spoke about the right use of the youth in the development of the country. Hon.Chairman Shri. Annasaheb Dange, Secretary Adv. RajendraDange, Executive Director, Prof. R. A. Kanai,Sant Dyneshwar Shikshan Sanstha's, Islampur, Prof (Dr.) M. G. Saralaya Principal, ADCBP, are guiding us and Miss.S.S.Kharat Madam Welcome to Participants of Online Elocution Competition. Finally, Mr. Y.S.Chandanshive Asst. Prof. propose vote of thanks.



TEACHER'S DAY CELEBRATION

5th September is the birthday of second President of India Dr. Sarvapalli Radhakrishnan. The great academic philosopher, and one of the most well-known diplomats, scholar, president of India and above all a teacher. As a tribute to this great teacher, his birthday has been observed as teachers' day. Teacher's day was celebrated online in the institute on 5th September, 2021. The whole function was planned by Students with faculty coordinators. Students has decided to conduct the guest lacture on Teachers in 21st Century, by the students as an appreciation for their teachers. All the teachers were greeted by the students and felicitated for their selfless services to the society.

GLIMPSE OF TEACHER'S DAY CELEBRATION

Sant Dnyaneshwar Shikshan Sanstha's
Annasaheb Dange
College of Pharmacy
Ashta
Celebrating Teachers
Day

Chief guest : Prof. Dr. V. A. KANGRALKAR

TOPIC
Teachers of 21st
Century

Date:- Sunday, 5th Sept 2021
Time:- 10:30 am to 12:00 pm

Principal,
Maratha Mandal's College
of Pharmacy Belgaum

www.adcbp.in



NATIONAL PHARMACY WEEK CELEBRATION

Annasaheb Dange College of B.Pharmacy organized different events like **Model Presentation, Poster Presentation, Pharma Detailing Competition, Myself Medicine Competiton and Quiz Competition**, from 16/09/ 2019 to 20/09/19 on the occasion of **National Pharmacy Week Celebration** These event were organized for the students to motivate and encourage to enhance creative thinking , power of innovation , presentation skill. All Students were enthusiastically participated and benefited from this events



GLIMPSE OF PHARMACY WEEK CELEBRATION



WORLD YOGA DAY CELEBRATION

Annasaheb Dange College of Pharmacy was celebrated a **World Yoga Day** on 21st June 2021. In this session, a brief speech was delivered with presentation on fitness pledge and fit India movement. Various topics were covered in this speech like awareness about physical as well as mental fitness and good health, exercise activity. All were encouraged to practice of sport/exercise/physical activity in their everyday life. Our staff and students enthusiastically participated in that session and were benefited. With strong guidance and blessings of our respected executive director, the session had tremendous success.



INDUCTION PROGRAM 2021

Our Institute had organized induction program for the fresh entrants of B. Pharmacy. Program was conducted on 13th August, 2019. The objectives of the programme is to make the students feel comfortable in their new environment, open them up, set a healthy daily routine, create bonding in the batch as well as between faculty and students. The program was inaugurated by lighting lamp by **Mr. R. R. Dange**, Mr.S.B.Hivarekar. Principal of the college **Prof. Dr.M.G. Saralaya** interacted with students. He told about History, Importance and scope of pharmacy, shared his past experience, Campus environments for Students. Also enlightened them with his energetic speech. After that Dr. R. S. Jagtap introduced faculty profile to students. Mr.S.N.Pattekari told about Examination pattern, Passing Criteria and attendance. Mr.S.J.Sajane explained about the various Scholarship schemes. Mr. Rohan Patil explained about sports and extracurricular activity. Mrs. Y.H.Momin explained about Women Development Committee. And session was concluded with vote of thanks delivered by Mr. Sujit A.Desai.



Student Corner



Ms.Smruti Urane
Final Year B.Pharmacy



Ms.Smruti Urane
Final Year B.Pharmacy



Ms.Shrutika Mali
Third Year B.Pharmacy



Ms.Smruti Urane
Final Year B.Pharmacy



Abhishek Shivpuje
S. Y. D. Pharm



Tanaya Vanjale
S. Y. D. Pharm



Shital Sawant
S. Y. D. Pharm



Ankita Chougule
F. Y. D. Pharm

STUDENTS PLACEMENT IN 2021-2022

Sr. No.	NAME OF STUDENTS	NAME OF COMPANY	POSITION	ANNUAL SALARY (Approx.)
1	Ms. Apurva Shipekar	TCS Pvt. Ltd, Mumbai	Patient Safety Associates	Rs.165000
2	Miss. Sonal Magdum	TCS Pvt. Ltd, Mumbai	Patient Safety Associates	Rs. 165000
3	Miss. Meghana Patil	TCS Pvt. Ltd, Mumbai	Patient Safety Associates	Rs. 165000
4	Miss. Jyoti Dongare	Advantmed India LLP, Ahmedabad	Trainee, Medical Coder	Rs. 165000
5	Mr. Mahesh Lipare	TCS Pvt. Ltd, Mumbai	Patient Safety Associates	Rs. 165000
6	Ms. Mukadam Samrin Sayeed	TCS Pvt. Ltd, Mumbai	Patient Safety Associates	Rs. 165000
7	Ms. Harugade Prajakta Kiran	TCS Pvt. Ltd, Mumbai	Patient Safety Associates	Rs. 165000
8	Ms. Akshata Nikte	3 GEN Consulting Pvt. Ltd., Pune	Trainee, Medical Coder	Rs. 182000
9	Mr. Sheshan Kamble	FDC Pvt. Ltd. Pune	Territory Manager	Rs-190000
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21	Ms. Kamble Ashwini Sunil	GEBBS health Care Solutions, Mumbai	Medical Coder	Rs. 150000
22	Ms. Barkade Shital Maruti	3 GEN Consulting Pvt. Ltd., Pune	Trainee, Medical Coder	Rs. 182000
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Sr. No.	NAME OF STUDENTS	NAME OF COMPANY	POSITION	ANNUAL SALARY (Approx.)
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26	Ms. Magdum Pruthvi Dharmendra	3 GEN Consulting Pvt. Ltd., Pune	Trainee, Medical Coder	Rs. 182000
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32	Mr. Mhetre Onkar Arjun	Episourse Pvt. Ltd, Mumbai.	Medical Coder	Rs. 204,000
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34	Ms. Apate Pratiksha Sanjay	Episourse Pvt. Ltd, Mumbai.	Medical Coder	Rs. 204,000
35	Ms, Kulkarni Dhanashri Dattatray	Cipla Ltd Verna, Goa	Trainee, QA Department	Rs. 204,000
36	Ms. Chougale Snehal Suresh	3 GEN Consulting Pvt. Ltd., Pune	Trainee, Medical Coder	Rs. 182000
37	Mr. Madane Swaraj Manageni	GEBBS health Care Solutions, Mumbai	Medical Coder	Rs. 150000
38	Mr. Mane Omkar Sonyabapu	Sun Pharma Laboratories, Panaji	Trainee Sales Executive	Rs. 3,00000
39	Mr. Patil Jeevan Subhash	GEBBS health Care Solutions, Mumbai	Medical Coder	Rs. 150000
40	Mr. Chougule Mahan Mahadeo	Intas Pharmaceutical Pvt. Ltd., Karad Division	Business Executive	Rs. 215000

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1.	Magdum Omkar Krishna	Wellness forever, Sangli	20,500/-
2.	Jangate Sruthi Manoj	Mangalmurti Medical store, Thikpuri	15,500/-
3.	Ghaytidak Akashy Kumar Mahadev	Maharashtra Medical store, Pune	15,500/-
4	Bodake Ashwini Naganath	Krushna Medical, Ashta.	15,000/-
5	Desai Ruturaj Mahesh Kumar	Meenal Medico	15,000/-
6	Deshinge Nutan Nanasaheb	Krushna Medical, Ashta	15,000/-
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9	Kamble Namrata Shivaji	Suraj Medical, Shivpuri	12500/-
10	Kamble Manali Satish	Mahalaxmi Medicine	12000/-
11	Kamble Rutuja Anil	Bharat Medical, Kabnur	12000/-
12	Khubikar Rutika Jalindar	Pratik Medical, Islampur	11500/-
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17	Mundhe Nathrao Govind	Porwal Medical & Cosmetics, Islampur	10,500/-
18	Lohar Sakshi Jalinder	3Gen Consulting Services LLP	10,000/-
19	Nayani Babiaaisha Liyaqat	Kashish Medical Centre, Miraj	10,000/-
20	Phalake Omkar Babaso	3Gen Consulting Services LLP	10,000/-
21	Siddha Pratik Sanjay	Meenal Medico, Ashta.	10,000/-
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23	Sankpal Rutuja Krishnkant	Shri Ganesh Medical, Shirala	9,500/-
24	Sankpal Vikas Madhukar	Shri Ganesh Medical, Shirala	9,500/-
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6	Irakar Ashkay Arvind	Govindrao Nikam College of Pharmacy, Savarde
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SCIENTIFIC ARTICLES

***In vitro* antimicrobial activity and phytochemical analysis of fruits of *Syzygium aromaticum* (L.) Merr. & L.M.Perry -An important Medicinal Plant**

ABSTRACT

The fruit of *Syzygium aromaticum* is an important medicinal plant was subjected to phytochemical screening and antimicrobial effect of methanol, ethyl acetate and acetone extracts. Antimicrobial activity was analyzed by agar well diffusion method against gram positive and gram negative bacteria. The phytochemical analysis carried out revealed the presence of alkaloids, coumarins, catechins, flavanoids, phenols, saponins, terpenoids, tannins and steroids in various solvent extracts. Methanol extract of *S. aromaticum* showed good antimicrobial activity against *Bacillus subtilis*, *Pseudomonas aeruginosa* and *Staphylococcus aureus*. It has been showed that the methanol extracts had wider range of activity on these organisms than the acetone and ethyl acetate extracts, which indicates that the methanol extracts of selected plants may contain the active components. The use of plant extracts with known antimicrobial properties can be of great significance in therapeutic treatments.

Keywords: *Syzygium aromaticum*, Phytochemical analysis, Antimicrobial activity, Pathogens.

INTRODUCTION

Plants produce a diverse range of bioactive molecules, making them rich source of different types of medicines. Most of the drugs today are obtained from natural sources or semi synthetic derivatives of natural products used in the traditional systems of medicine [1]. A wide range of medicinal plant parts are used for extract as raw drugs and possess varied medicinal properties [2, 3]. Medicinal plants contain some organic compounds which provide definite physiological action on the human body and these bioactive substances include tannins, alkaloids, carbohydrates, terpenoids, steroids and flavonoids [4, 5]. The secondary compounds include alkaloids, flavonoids, terpenoids, steroids, anthraquinones and volatile oils [6]. Phytochemical analysis revealed that phenolic compounds especially alkaloids are responsible for the antimicrobial activity. Two types of antifungal compounds exist in the plants. The compounds, which occur naturally in high concentrations, are the constitutive compounds and those produced in response to fungal infections are known as phytoalexins. The role of these compounds in plant resistance against fungi has been reported [7]. The antimicrobial potential of different medicinal plants are being extensively studied all over the world, but only a few studies have been systematic manner [8]. The present study was aimed to evaluate the phytochemical screening and antimicrobial activity of *Syzygium aromaticum* fruit extracts.

Collection of plant material

The fresh plants materials were collected from Courtallum hills, Tirunelveli District, Tamil Nadu, and India. Taxonomic identification of the plants was carried out with the help of Dr. R. Ramasubbu Assistant professor, Ganghigram Rural Institute Dindigul, Tamil Nadu, and India.

Preparation of fruit extracts

The dried fruit extracts were prepared by sequential extraction method using three organic solvents in the basis of polarity of solvents (Methanol, Ethyl acetate and Acetone). 25g of the fresh fruit sample was taken in a conical flask and 200 ml of Acetone was added. The conical flask was kept on mechanical shaker for 24 hours, after that the extract was filtered through Whatman filter paper 1 and the pellet was allowed for drying and this pellet was used for the next solvent extraction (Ethyl acetate and Methanol). The dried extract was recovered and stored in refrigerator for further analysis.

Extract recovery percentage

The percentage of extracts yield was calculated using the following equation.

$$\% \text{Yield} = \frac{\text{Extract + container (g)} - \text{Empty container (g)}}{\text{Sample weight (g)}} \times 100$$

Extracts screening

The dried fruit extracts were subjected to antimicrobial activity and qualitative phytochemical screening for the identification of various classes of active biochemical constituents.

Test for Alkaloids (Mayers Test)

To 1 ml of fruit extracts, 6 drops of Mayers reagent was added. The formation of yellowish creamish precipitate indicated the presence of alkaloids [9, 10].

Test for Saponins (Foam Test)

1ml of fruit extracts were mixed with 5ml of distilled water. The contents were heated in a boiling water bath. Frothing indicated the presence of saponins [9, 10].

Test for Tannins (Braymer's Test)

1ml of the fruits extracts were mixed with 2ml of water. To this, 2 drops of 5% ferric chloride solution was added. Appearance of dirty green precipitate indicated the presence of tannins.

Test for steroids (Salkowski Test)

To 2ml of the fruit extracts, 2ml of chloroform was added followed by concentrated sulphuric acid. Formation of reddish brown ring at the junction showed the presence of steroids.

Antimicrobial activity

Staphylococcus aureus, *Streptococcus faecalis*, *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae* and fungus *Candida albicans*. All samples were kindly donated by the Department of Biology Gandhigram Rural Institute, Dindugul.

The test organisms were maintained on nutrient agar slant and kept in a refrigerator at 4°C. 100ml aliquots of nutrient broth were inoculated with the culture of test micro-organisms using a loop and then incubated at 37°C for 24 hrs.

Antimicrobial activities of methanol, ethyl acetate and acetone fractions of plants were carried out using the agar well diffusion method. Mueller-Hinton agar medium (MHA) was used for antimicrobial susceptibility tests. The MHA medium was prepared by pouring 20 ml of molten media into sterile Petri plates. The plates were allowed to solidify and 0.2ml of an overnight broth culture of test micro-organisms was added to 20ml of cooled molten agar on the medium and allowed to dry for 5 min. For agar well diffusion method, four equidistant wells (6 mm in diameter) were cut from the agar with the help of a cork-borer. 40 µl of fruits extracts (methanol, ethyl acetate and acetone extracts) containing (4 mg) concentration was loaded on 6 mm well. The standard antibiotic solution Gentamicin (10 µg) was placed on the surface of the plates. The plates were kept for incubation for 24 hrs at 37°C. The zone of inhibition was measured around the well containing samples and standard. The experiments were performed in triplicates.

RESULTS AND DISCUSSION

Extraction methods used pharmaceutically involves the separation of medicinally active portions of plant tissues from the inactive/inert components by using selective solvents. During extraction, solvents diffuse into the solid plant material and solubilize compounds with similar polarity [14]. The extractive values of three different solvents extracts are given in Table 1. The highest extractive yield was found in the methanol extract.

Table 1: Extractive value of plant extracts

Plant extracts	Yield % (W/W)
Methanol	10.8%

Preliminary qualitative test according to [15] is useful in the detection of bioactive principles and subsequently may lead to drug discovery and development [16]. Table 2 shows extracts possessed the phytochemical constituents such as flavonoids and phenols. Methanol and ethyl acetate extracts showed the presence of flavonoids, phenolics, tannins, terpenoids and steroids while alkaloids.

Phytochemical tests	Solvent extracts
	Methanol
Alkaloids	-
Flavonoids	+
Phenols	+
Saponins	+
Tannins	+
Terpenoids	+

Microbial strain	Solvent Extracts (Zone of inhibition in mm)
	Methanol
<i>Escherichia coli</i>	8.5±0.50
<i>Staphylococcus aureus</i>	11 ±0.00

In previous reports of *Syzygium aromaticum* flower extract revealed highest antimicrobial activity against tested microbial pathogens. Earlier finding of data supported to our results of *Syzygium aromaticum* fruit extracts activity. There is no any data published on the antimicrobial activity of *Syzygium aromaticum* fruit of different solvent extracts. Some antibacterial activity of *S. aromaticum* fruit extracts against *staphylococcus aureus* has been established.

CONCLUSION

The results of present work established that all the extracts possess number of important phytoconstituents and antimicrobial activity against selected microbes. The results provide justification for the use of these plants in folk medicine to treat various infectious diseases. Further, can be investigation for the development of new potential antimicrobial compounds.

REFERENCES

1. Sukanya S.L., Sudisha J., Hariprasad P., Niranjana S.R., Prakash H.S., Fathima S.K. Antimicrobial activity of leaf extracts of Indian medicinal plants against clinical and phytopathogenic bacteria. *Afr J Bio.* 2009; 8(23): 6677- 6682.
2. Gisesa, W.N.O., 2004. An Ethnopharmacological Investigation of Plants used by Abagusii Traditional Medical Practitioners, PhD Thesis, School of Pure and Applied Sciences, Kenyatta University; 2004.

3. Egwaikhide P.A., Gimba C.E. 2007. Analysis of the Phytochemical Content and Anti-microbial Activity of *Plectranthus glandulosus* Whole Plant. *Middle East J Sci Res.* 2007 ;2(3-4): 135-138. ISSN 1990-9233.
4. Edoja, H.O., Okwu, D.E., Mbaebie B.O. Phytochemicals constituents of some Nigerian medicinal plants, *Afr. J. Biotechnol.* 2005 ;4(7):685-688.
5. Heim K., Taghiaferro, A., Bobilya D. Flavanoid antioxidant chemistry, Metabolism and structure activity relationships, *J. Natr. Biochem.* 2002;13: 572-584.
6. Grayer R.J, Harborne J.B, 1994. A survey of antifungal compounds from higher plants. *Phytochemistry.* 1994 ;37: 19-42.
7. Arora D.S., Kaur G.J., Kaur, H. 2009. Antibacterial activity of tea and coffee: Their extracts and preparations. *Int. J. Food Prop.* 2009 ;12: 286 294.

