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A REPORT ON ALUMNI LECTURE ON "ROLE OF PHYTOCHEMICALS IN CHEMOPREVENTION AND CHEMOTHERAPY OF CANCER"

THEME OF THE EVENT: The Department of Microbiology at Ashutosh College organized a highly informative & enlightening alumni lecture on the topic "Role of Phytochemicals in Chemoprevention and Chemotherapy of Cancer," delivered by Dr. Shreyashi Palit, an alumni of the Dept. as well as an accomplished researcher in the field of natural products and cancer research. The lecture was aimed at providing insights into the growing importance of phytochemicals—bioactive compounds derived from plants in the prevention and treatment of cancer.

ACADEMIC SESSION: 2024-2025

DATE: 16 Jan 2025

VENUE: Centenary Building, Asutosh College

OBJECTIVE/ PURPOSE: The session attracted a large audience of students & faculty members, all eager to learn about the latest advancements in cancer research and the potential applications of plant-based compounds in modern medicine. The event fostered an interactive platform for discussion on the interdisciplinary approach required to address the challenges in cancer treatment.

RESOURCE PERSON: Dr. Shreyashi Palit, Assistant Professor & Head, Dept. of Biochemistry, Sarsuna College

ORGANIZERS: Following Faculties of Dept. of Microbiology, Asutosh College

Dr. Kuntal Kanti Goswami, Assistant Prof. & HOD
Dr. Pranab Kumar Das, Assistant Prof.

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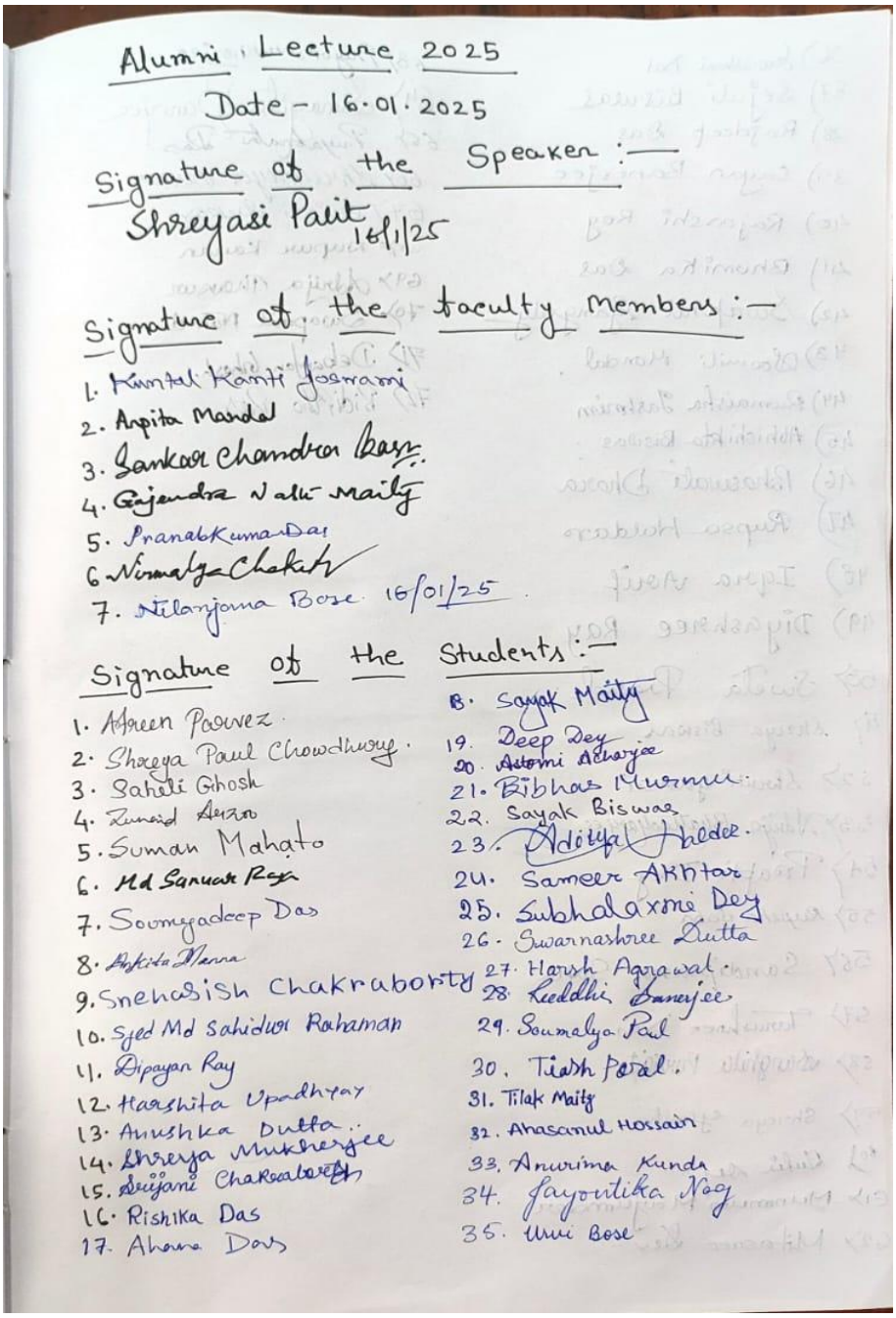
Dr. Gajendra Nath Maity, Assistant Prof.
Dr. Arpita Mondal, Assistant Prof.
Dr. Sankar Chandra Basu, Assistant Prof.
Dr. Nirmalya Chakraborty, Faculty
Mrs. Nilanjana Bose, Faculty

TARGET PARTICIPANTS: Semester I and III students of the Department.

ATTENDANCE SHEET:



Alumni Lecture 2025

Date – 16.01.2025

Signature of the Speaker :—

Shreyasi Pait 16/1/25

Signature of the faculty members :—

1. Kuntal Kanti Joarami
2. Arpita Mandal
3. Sankar Chandra Basu
4. Gajendra Nath Maity
5. PranabKumarDas
6. Nirmalya Chakraborty
7. Nilanjana Bose 16/01/25

Signature of the Students :—

1. Afreen Parvez
2. Shreya Paul Chowdhury
3. Saheli Ghosh
4. Zunaid Ansari
5. Suman Mahato
6. Md Sanwar Raza
7. Soumyadeep Das
8. Ankita Meena
9. Snehasish Chakraborty
10. Syed Md Sahidur Rahaman
11. Dipayan Ray
12. Harshita Upadhyay
13. Anushka Dutta
14. Shreya Mukherjee
15. Srijani Chakraborty
16. Rishika Das
17. Ahana Das
18. Sayak Maity
19. Deep Dey
20. Aitomi Acharjee
21. Bibhas Murmu
22. Sayak Biswas
23. Aditya Halder
24. Sameer Akhtar
25. Subhalaxmi Dey
26. Swarnashree Dutta
27. Harsh Agrawal
28. Riddhi Banerjee
29. Soumalya Paul
30. Tiash Porel
31. Tilak Maity
32. Ahasanul Hossain
33. Anurima Kundu
34. Jayantika Nag
35. Uma Bose

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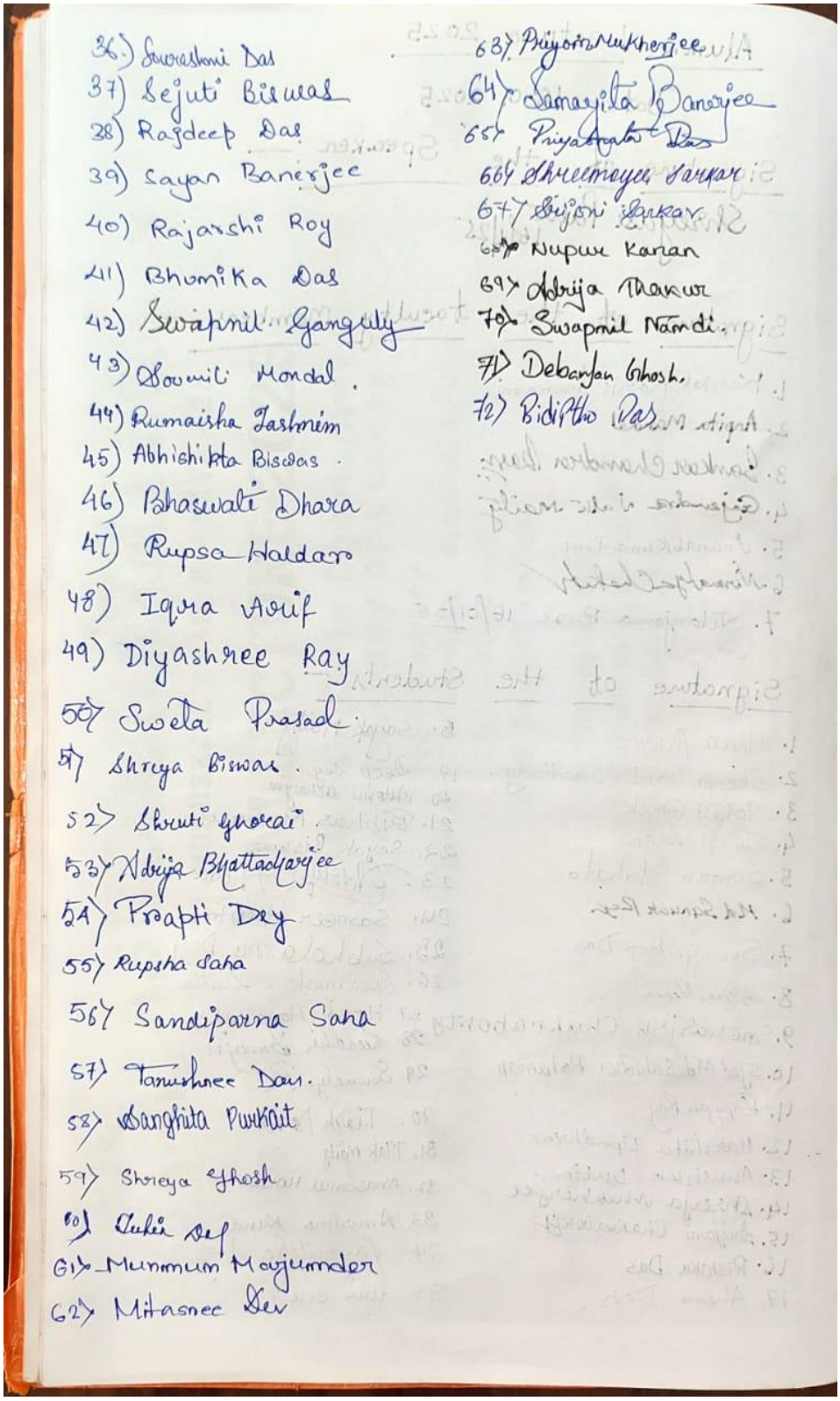

BRIEF REPORT ABOUT THE EVENT/ PROGRAMME:

- **Introduction:** The speaker began by explaining different types of cancer, current therapeutic medicines available to treat cancer and its present status worldwide. Then she gave a vivid introduction to phytochemicals —naturally occurring chemical compounds found in plants that are known to have health-promoting properties. Phytochemicals include antioxidants, flavonoids, alkaloids, terpenoids, and other plant-derived molecules. These compounds have long been associated with various therapeutic effects, including anticancer properties, and have gained significant attention in scientific research for their potential to prevent or treat cancer.

- **Mechanisms of Action of Phytochemicals in Cancer:** The lecture delved into the diverse ways in which phytochemicals exert anticancer effects. The speaker outlined key mechanisms through which these compounds act:

  - **Antioxidant Activity:** Many phytochemicals neutralize free radicals, which are known to cause oxidative stress and DNA damage, contributing to cancer development.
  - **Induction of Apoptosis:** Certain phytochemicals can trigger apoptosis in cancer cells, thereby preventing the uncontrolled proliferation of tumors.
  - **Inhibition of Angiogenesis:** Phytochemicals can prevent the formation of new blood vessels that tumors need to grow and spread.
  - **Cell Cycle Regulation:** Some phytochemicals modulate the cell cycle, preventing cancer cells from dividing uncontrollably.

- **Chemoprevention and Chemotherapy:** The speaker explained the dual role of phytochemicals in both chemoprevention and chemotherapy:

  - **Chemoprevention:** This refers to the use of natural compounds to prevent the initiation and progression of cancer. Phytochemicals like curcumin (from turmeric), resveratrol (from grapes), and epigallocatechin gallate (EGCG, from green tea) have been shown to

have protective effects against various types of cancer by preventing DNA damage and reducing inflammation.

- **Chemotherapy:** Phytochemicals also have therapeutic potential in the treatment of existing cancers. The speaker highlighted several plant-derived compounds which are already used in conventional chemotherapy treatments. These compounds work by disrupting cancer cell division and inducing apoptosis in malignant cells.

• **Challenges in the Use of Phytochemicals:** Despite the promising potential of phytochemicals, the speaker highlighted several challenges in their clinical application:

- **Bioavailability:** Many phytochemicals have low bioavailability, meaning they are not easily absorbed or utilized by the body, because most of the phytochemicals are not water soluble. Researchers are working on methods to improve the bioavailability of these compounds.
- **Dosage standardization:** The concentration and composition of phytochemicals can vary depending on the plant source, making it difficult to standardize doses for clinical use.
- **Toxicity and Side Effects:** While phytochemicals are generally considered safe, some compounds may have toxic effects at high doses or interact with other medications.

• **Future Prospects and Research Directions:** The speaker concluded by discussing the exciting future prospects of phytochemicals in cancer research. With advances in biotechnology, it is becoming increasingly possible to isolate, synthesize, and modify these compounds by employing transgenic organisms to enhance their therapeutic efficacy. Researchers are also exploring novel methods of Targeted Drug Delivery (TDD) mechanisms by conjugating nano particles with phytochemicals for better efficacy within human system.

The interdisciplinary approach of combining microbiology, pharmacology, and plant science was emphasized as critical in advancing the field of phytochemical-based cancer therapies. The speaker encouraged students to pursue careers in these emerging areas and contribute to the development of novel cancer treatments.

EXPECTED OUTCOME:

The alumni lecture was an engaging and insightful session that provided the students with a deeper understanding of the potential of plant-based compounds in the fight against cancer. These compounds are very common and are a part and of our daily diet. The speaker's expertise and the compelling research presented helped to shed light on the exciting developments in this field.

The event underscored the importance of continued research and innovation in the realm of cancer treatment and prevention, and it inspired students to explore the vast possibilities that phytochemicals offer in modern medicine. The overwhelming participation of students is worthy to be noted. The Department of Microbiology, Ashutosh College remains committed to providing a platform for similar academic exchange and scientific advancement in future.

GEO-TAGGED PHOTOGRAPHS:

Resource Person

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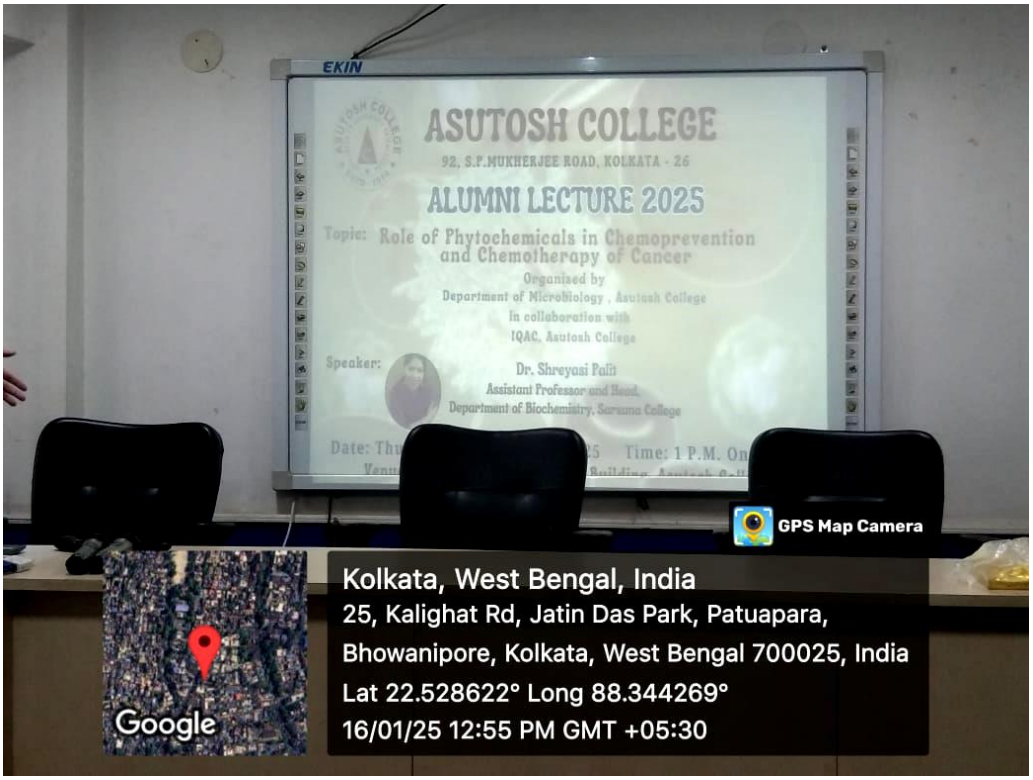

Presentation

Felicitation of Resource Person

Participating Students

Audience- Faculty & Students

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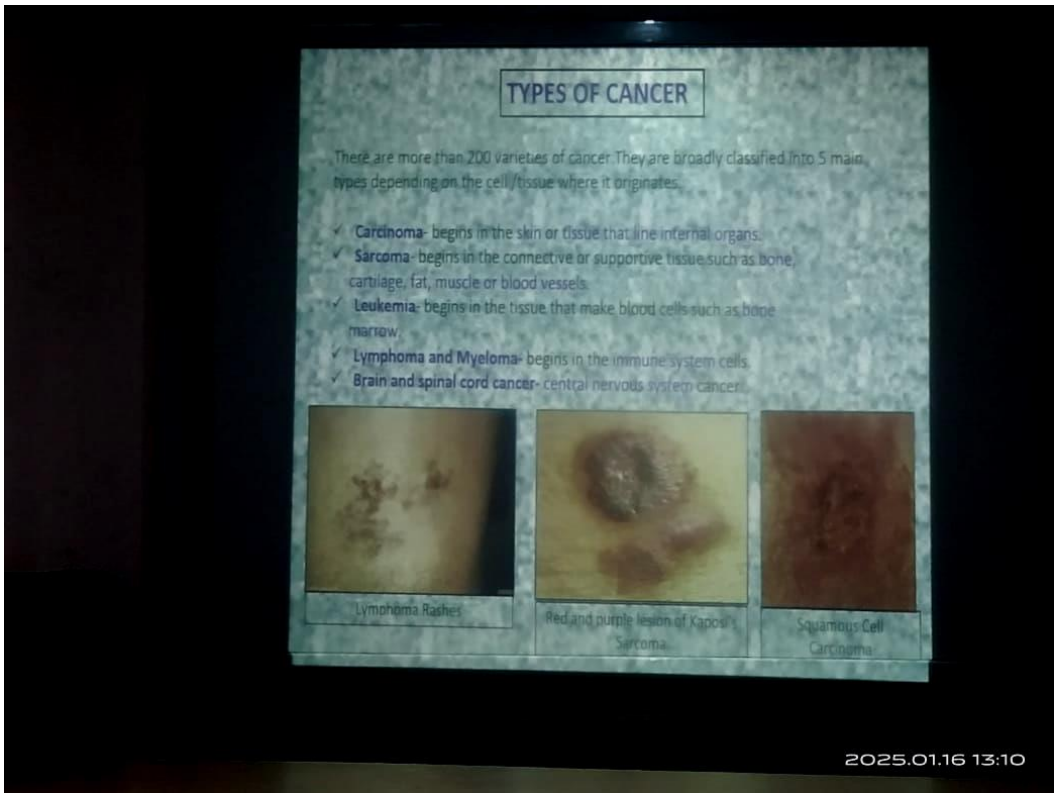
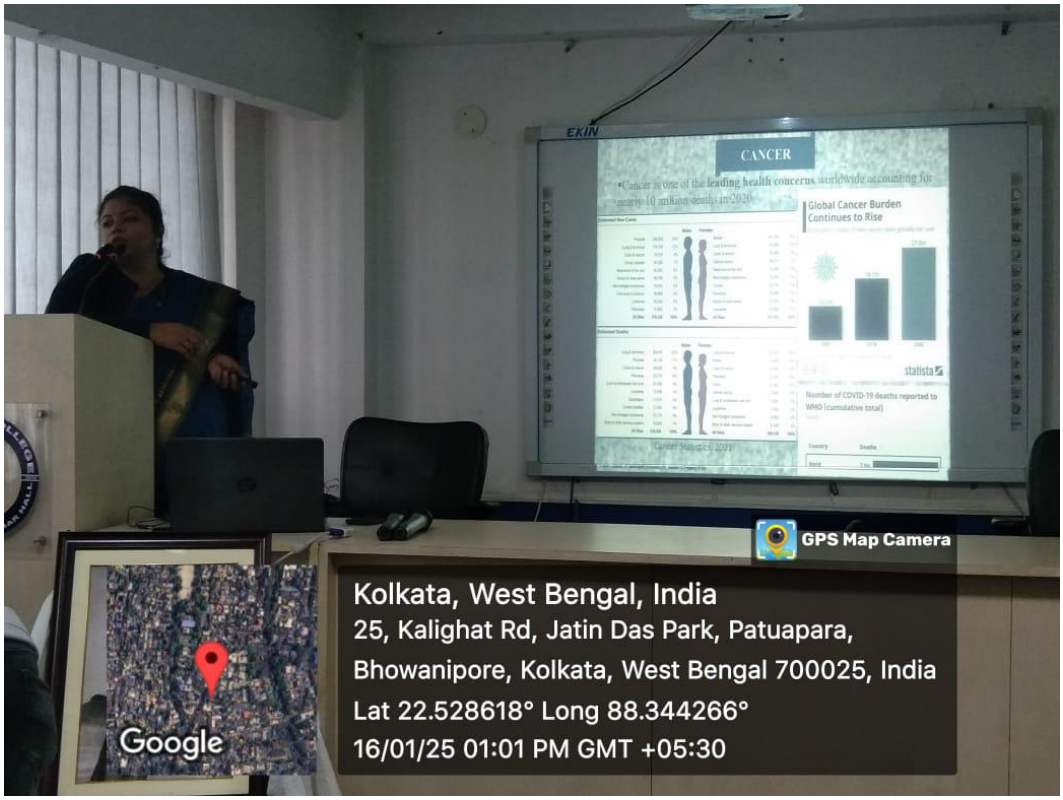


Presentation



Presentation

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Resource person with faculties