



Vol - 1, September 2025



Vigyan Barta

FROM THE DESK OF THE MINISTER-IN-CHARGE



It's a matter of pride and happiness to know that this department is going to publish information booklet stating the activities of this Department in various mode.

I wish it a successfull one and achieve the goal at its desired level

Ujjal Biswas
(Ujjal Biswas)

UJJAL BISWAS
Minister-in-Charge
Department of Science & Technology
and Biotechnology
Government of West Bengal

FROM THE SECRETARY'S DESK



In an era defined by rapid technological evolution and scientific breakthroughs, the Department of Science and Technology & Biotechnology, Government of West Bengal, stands at the forefront of harnessing innovation to transform lives and build a promising future. Our mission is to ignite the spirit of inquiry, promote cutting-edge research, and translate scientific advancements into sustainable solutions that address the unique challenges of our State.

The convergence of emerging technologies like artificial intelligence, biotechnology, quantum computing and space sciences holds unprecedented promise. Besides, addressing issues of Environment, Climate Change, Public Health, and Sustainable Development demand integrated scientific approaches, through strategic partnerships across academia, industry, and grassroots innovators. We nurture an ecosystem where ideas flourish and impact thrives. Our initiatives foster entrepreneurship, support young researchers, and bridge the gap between laboratory discoveries and real-world applications.

In recent years, we have taken significant strides in promoting research and development, supporting start-ups and entrepreneurship in the biotechnology sector, and driving programs that link science with societal needs. Initiatives like the RIES, BOOST, WB-FIST, Promotion of IPR, Geo-portal and drafting a Biotechnology Policy of West Bengal are key milestones in our journey towards inclusive and sustainable development.

This first issue of 'Vigyan Barta' aims to highlight our core programs, showcase success stories, in the Biotechnology domain to serve as a source of information and inspiration for students, researchers, policy makers and citizens alike. Other issues on different topic will follow soon.

Together, let us shape a future based on scientific knowledge, understanding, temperament and sustainable growth.

Vijay Bharti

(Vijay Bharti, IAS)
Secretary, DSTBT, GoWB



Release of Abstract Volume 32nd West Bengal State
Science & Technology Congress 28 Feb 2025

JAGADIS BOSE NATIONAL SCIENCE TALENT SEARCH



JENSRs-IASc Talent Enrichment Programme for Student Scientists



Workshop on "Learning everyday techniques of a Biolab" Participating School: Santoshpur Rishi Aurobindo Balika Vidyapith

Awarding Talent Search Test and Bigyani Kanya Medha Britti scholarships student through JBNSTS under the Jagadis Bose National Science Talent Search (JBNSTS) program:

The Department provides scholarship support to 50 students in each category for 'Senior Talent Search Test' and 'Senior Bigyani Kanya Medha Britti Program'. Additionally under the 'Junior Talent Search Test' & 'Junior Bigyani Kanya Medha Britti' program, 250 science students (+2 level) of different districts are also provided with scholarships for pursuing studies in science at under-graduate level. This is a flagship program of the Dept. conducted through the JBNSTS organization.

In the year 2024-25 fellowships have been provided to 50 students under the Senior Talent Search Test and Senior Bigyani Kanya Medha Britti programmes and 200 students under the Junior Talent Search Test and 50 students under Junior Bigyani Kanya Medha Britti were provided scholarships.



Jagadis Bose National Science Talent Search (JBNSTS) is a Kolkata based autonomous body under Higher Education Department, GoWB whose primary objectives are to organise the programmes outlined below:

- Junior Talent Search Test
- Junior Vigyani Kanya Medha Britti
- Senior Talent Search Test
- Senior Bigyani Kanya Medha Britti
- JBNSTS Institute is also the Training Partner for the RISE Programme of the DSTBT, GoWB.
- A modern biotechnology laboratory has also been set up with the fund support from the DSTBT, GoWB for the biotechnology workshops and summer internship programmes for the school and college students and related researches in Life Sciences.



Programmes: Junior Talent Search Programme

○ **Selection Parameters:** Selection from class XI Science students ₹1250/p.m for 2 yrs + Book Grant ₹2500/- per year

○ **Beneficiaries:** 200



Programmes: Junior Vigyani Kanya Medha Britti Programme

○ **Selection Parameters:** Selection from class XI Science girls students ₹1250/p.m for 2 yrs + Book Grant ₹2500/- per year

○ **Beneficiaries:** 50



Programmes: Senior Talent Search programme

○ **Selection Parameters:** Selection from 1st year UG students (Sc/Engg/Medicine) ₹4000/p.m for 4-5 yrs + Book Grant ₹5000/-

○ **Beneficiaries:** 50



Programmes: Senior Bigyani Kanya Medha Britti Programme

○ **Selection Parameters:** Selection from 1st year UG girl students (Sc/Engg/Medicine) ₹4000/p.m for 4-5 yrs + Book Grant ₹5000/-

○ **Beneficiaries:** 50

Application form are made available to the candidates in online from JBNSTS website (<https://jbnsts.ac.in>)

**Content is checked and confirmed
by Prof.Partha Pratim Majumder**



Eminent geneticist Prof. Partha P. Majumder calls biotechnology a game-changer for health and agriculture, but cautions against overhyped claims like species resurrection. In an in-depth interaction, Prof. Partha Pratim Majumder, a pioneering geneticist and a National Science Chair of the Govt. of India, offered a candid and comprehensive view of biotechnology's growing relevance in modern science—while warning against its potential overstatement and misuse. Prof. Majumder, often referred to as India's "Gene Guru", has played a key role in shaping India's human and population genetics research landscape. He founded both the Centre for Population Genomics and the National Institute of Biomedical Genomics, and currently chairs multiple scientific committees under the Department of Science and Technology and Biotechnology (DSTBT), Government of West Bengal. Explaining the core of biotechnology, he said,

"It's the application of technology to understand biological processes. This can help us genetically enhance crop yield, increase nutritional content, and even predict and prevent genetic diseases in humans." West Bengal, he noted, has emerged as a proactive state in promoting biotechnology, through infrastructure grants, research support, and industry partnerships. "The state has shown a sincere commitment to using science for public good," he added, citing some ongoing agricultural and medical biotech projects. However, Prof. Majumder urged caution against exaggerated claims. Responding to the much-hyped announcements by companies like Colossal Biosciences about bringing extinct species like the mammoth or dire wolf back to life, he said, "We don't yet know whether this is science fiction or a real possibility. While it's fascinating, we must focus on immediate challenges—curing genetic diseases, improving crops, and fighting food insecurity." He discussed how technologies like CRISPR-Cas have revolutionized gene editing but are still limited in their practical application. "Treatments using biotechnology are currently very expensive, sometimes exceeding ₹18 crores, as seen in rare diseases like Spinal Muscular Atrophy (SMA). While we can now manipulate single-gene disorders, most common diseases like diabetes involve multiple genes, making them far harder to treat using current biotechnological methods." Prediction, however, is one of biotech's most promising capabilities. "We can now foresee whether someone is at risk of developing certain diseases based on their genome sequence. That kind of prediction enables prevention, which is more practical and impactful for public health, at least for now," he stated. Looking ahead, Prof. Majumder is optimistic yet grounded. He believes biotechnology will significantly transform health, agriculture, and the environment—but not overnight. "We must be patient, ethical, and focused. Biotechnology's greatest strength is its ability to solve real problems—not to feed fantasies."

Prof. Partha Pratim Majumder

Rejuvenation and Propagation of Mandarin Orange in Darjeeling West Bengal using true variety Plants

Need of the Intervention:

Darjeeling mandarin (*Citrus reticulata*) is grown in 274 acres out of which 75 acres are presently at fruiting stage. The State Action Plan on Climate change has identified this region as one of the most fragile ecosystem region of the state due to the incremental impacts of climate change. As major impacts due to climate change in agricultural sector envisaged in this latest SAPCC of the state, it also has been clearly mentioned in the agro-climatic zone wise summary impacts of potential climate change scenario that there is a chance in '*Decline in size and quality of citrus such as mandarin orange due to rising minimum temperature during flowering of citrus trees*'. During the survey it has been reported by the farmers that the erstwhile low altitude orange orchards are marked with sharp decline in citrus production. Some of the gardens are bound to close or shift to other production sites since they face a huge loss in orange farming.

Reasons for taking up the Project:

> Farmers often face a problem on procuring quality planting materials while developing an orchard and so resulting in long gestation period and plantation being infected by various disease which ultimately discourage the farmers to take up the horticulture activities as a source of their livelihood.



> This situation coupled with higher establishment cost, increasing adversities developed due to climate change and its uncertainties create more hindrance to local stakeholders to cultivate oranges.



Project Goal :

To shorten the starting of fruit bearing from 7 years in case of seedlings to 2 years by planting grafted seedlings. To maintain true to the mother type so that quality remains the same.

To encourage farmers on cultivation of mandarin orange reducing the gestation period and by providing quality planting material.

Capacity Building: Hands on demonstration on grafting and budding in the farmer's field.

GP/Village level location where lab to land demonstration will take place: Mungpoo in Takdah block, Munsong in Lava block, Jamuni in Bijanbari block, etc.

Publicity, Awareness, Training and Capacity Development Programmes: Completed 4 times awareness and training programme related orange grafting 120 people inside the plantation and outside of the plantation at each location.

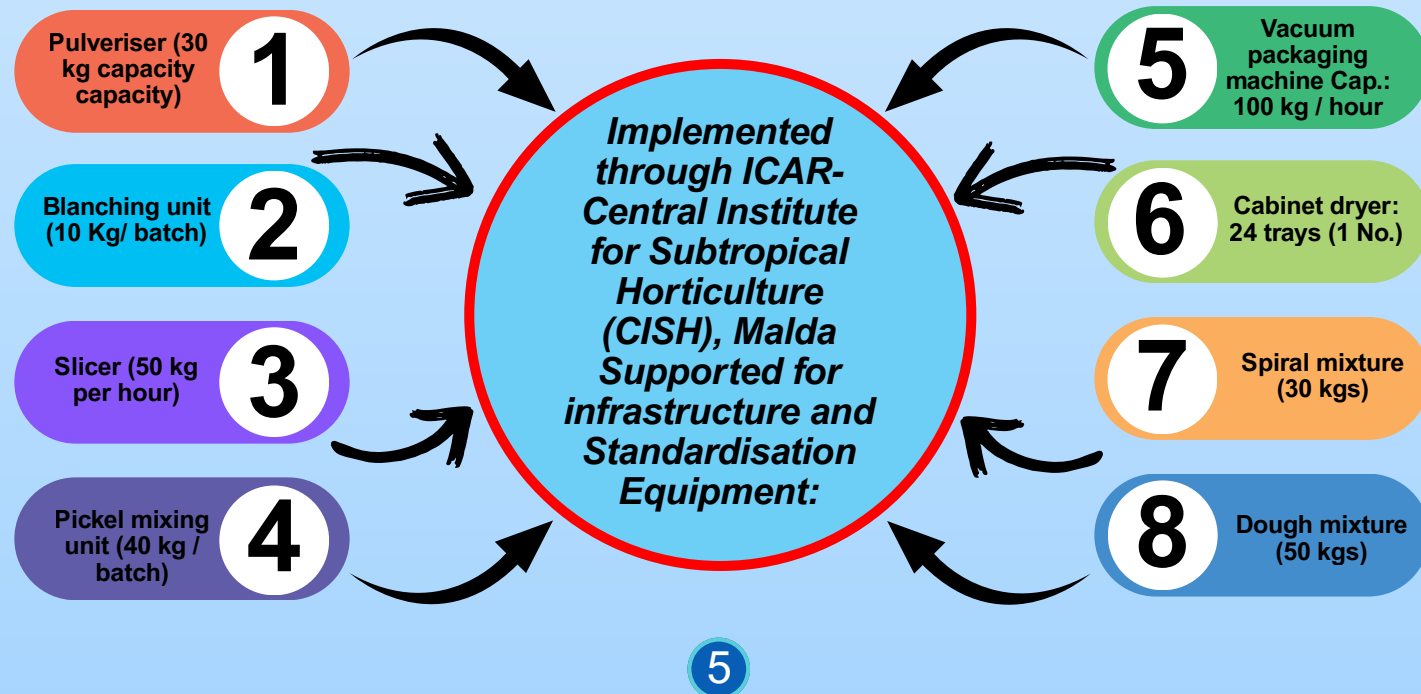
Total 16 no. of capacity building workshop with total 500 local farmers.

Infrastructure support for standardization of quality of processed food products for Rural women FPO in Malda

To provide support for income generation of the local women FPO infrastructure support have been given to CISH, Malda to Standardize production process of fruit (mango) based certified food products by involving group of local women and upscaling for its commercial production. This will also reduce the pre and post harvest loss by utilising the fallen fruits, not suitable for table purpose.

Beneficiaries: 60 women from villages of Habibpur block, Malda have been technically trained and hand held to produce these products, through forming their FPO (*Alokini*).

IMPLEMENTATION AND FUNDING:



SUCCESS STORY OF ALONA LIFE SCIENCES PVT LTD. - ONE OF THE INCUBATEE AT KOLKATA BIOTECH PARK (KBP)

Major achievement during the year 2023-2024

Registered under Ministry of Corporate Affairs (MCA), Govt. of India, in month July, 2023

Recognised under StartupIndia in the month of September 2023

Registered under Ministry of Micro, Small & Medium Enterprises (MSME), Govt. of India, in the month of November, 2023



Details of Process / Product / Technology developed during 2023-2024

ALONA is working in the following areas:

Agricultural Sector: Development of products to overcome the detrimental effects of chemical-based farming; further we advocate a more sustainable Natural Indigenous Farming System (NIFS) with Post-Harvest Solution. Under this category, research is going on to formulate three different products and would be patented in future.

- > A fermented natural organic manure
- > A fermented natural bio-controlling agent (insecticide and pesticide)
- > Enhancement of shelf-life of fruits and vegetables



Health Sector: We identify new active ingredients derived from plants and other natural sources for the development of Pharmaceuticals, Health-foods and Personal Care products.

- > Collagen based protein shake.



Details of Process / Product / Technology Commercialized during 2023-2024

FMCG Products

- > Herbal mosquito repellent
- > Hair care product with essential oils from herbal origin
- > Cold Coffee
- > Multivitamin multimineral gummies

No. of Research publication during 2023 - 2024

8 different Research Findings have published in National & International Conferences in this period of time.

No. of Patents obtained

Received 2 provisional patents (below-mentioned topic). Also received 3 trademarks.

- > Formulation to enhance shelf life of post-harvest fruits and vegetables.
- > Collagen Peptide based Protein Formulation.

Biotechnology is a frontier area in modern science and technology, which is poised to make significant contributions in agriculture, human and animal healthcare, environment management and process industries. Experts are now floating ideas for transition into a bio based economy, because of the potential of biotechnology to provide environment friendly products and processes in almost all sectors of economy including manufacturing such as paper and pulp, pharmaceuticals, mining, automobile, polymers, crop protection and nutrition, increasing productivity of livestock and crops, textiles, leather as well as providing viable alternate sources of energy without creating strain on the existing natural resources. The biotechnology sector of India is highly innovative and is on a strong growth trajectory.

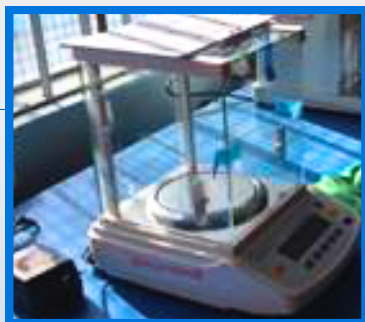
Located at the eastern region of the country, West Bengal is the 14th largest State with a geographical area of 88,752 km² sharing international and state borders with Sikkim, Bhutan and Nepal in the north, Assam and Bangladesh in the east, Bihar and Jharkhand in the West and Odisha in the south. The State is blessed with plentiful natural resources which are of great economic value. State is also an entry point to markets in Southeast Asia, via the North Eastern states and Kolkata Port. Kolkata, which is a metropolitan city, has a comparatively lower cost of operating a business as compared to the other metropolitan cities of India. There is huge potential of developing Biotechnology based industries in West Bengal. It offers immense scope for sustainable economic growth through use of innovative technologies for *in vitro* mass multiplication of elite plant varieties for enhancing the productivity, production of value-added products, probiotics, healthcare products, production of bio-fertilizers and bio-pesticides etc. There are several highly reputed national and state research institutions, central and state universities, agricultural universities and institutions, engineering & technology institutions, medical and health related research, academic, clinical and public health institutions, IT infrastructures and industrial R&D, which together can represent different sectors of biotechnology, and can robustly contribute towards the development, validation and delivery of biotechnology products. The Government of West Bengal has identified biotechnology as a major thrust area for economic growth and has taken initiatives by formulating proactive policies to attract investment in the area of biotechnology by promoting entrepreneurship.



THE DSTBT, GOWB, WITH ITS BIOTECH WING, SERVES THE SOCIETY AT DIFFERENT STAGES, STARTING FROM THE SCHOOL STUDENTS TO STARTUPS AND ENTREPRENEURS.

- DSTBT has set up a state-of-the-art biotech lab at Jagadish Bose National Science Talent Search (JBNSTS), where the school students (higher secondary) are trained with modern biotech instruments and techniques. More than 5600 school students have been trained with 15+ types of hands-on biotech training modules.
- DSTBT has launched the Fostering Infrastructure for Science & Technology (WBFIST) Programme to strengthen the laboratory infrastructure in the schools.
- There is RISE Programme (Research Internship in Biotechnology based – Sciences and Engineering), which is a two-month research internship programme, to encourage talented students to consider Life Science or Medical Science based research and innovation as a career option. It is targeted to strengthen their hands-on experiences and operational skills with the high-end instruments. Students pursuing master degree (M.Sc./M.Tech) in any basic and applied Life Science or Medical Science stream, including Bioinformatics, can apply for the RISE Programme. Introduced in the year 2015-16, 135 students were provided the training till date at esteemed research institutes in West Bengal. Budget per student – Rs. 20,000 + 5,000 (for students' fellowship for 2 months + miscellaneous costs) + Rs. 75,000 (for supervisors' contingency grant).

- **Biotechnology based Opportunities Offered to Science and Technology Departments (BOOST) Programme:** The Scheme provides grant-in-aid to the UG and PG Colleges for procurement of equipment (along with consumables, books and software at approx. 10% of the equipment budget) to strengthen biological laboratories for modern academic curriculum. BOOST supports the efforts of the academic department as a whole targeting the students. Individual R&D support is not considered under this Scheme. The support is offered at two levels: BOOST – I (upto 25.0 lakhs – for UG/PG Colleges) and II (upto 50.0 lakhs – for PG Colleges). Introduced in the FY 2013-14, DSTBT, GoWB has set up 37 BOOST labs in UG/PG Colleges and 9 BOOST labs in Universities in West Bengal till date. Till date, 10,000+ students and 200+ research projects were benefitted from the BOOST Programme and 30+ training programmes / workshops organized.



St. Joseph's College



Uluberia College



Uluberia College

- DSTBT offers R&D fund support to the researchers of colleges and universities of West Bengal. Till date, more than 100 research projects have been supported in biotech sector.
- **Kolkata Biotech Park (KBP):** With a vision to promote biotech entrepreneurship in the State DSTBT has set up the Kolkata Biotech Park. It is a Bio-incubation facility at Sector-V, Salt Lake with 11,000+ sqft. of incubation space and a Central Instrument Facility. 7 biotech companies are already operational in the KBP, and lab modules are under construction for 4 more incubatees (total 11 incubatees).
- **Genetic Services Unit by National Institute of Biomedical Genomics (NIBMG):** It is a molecular and genetic diagnostic unit, where the patients, referred from the Govt. hospitals are tested for free. Till date, GSU has performed almost 9000 tests for more than 7500 individuals. Total number of tests offered : 41 tests for 58 genetic conditions and total roughly estimated market price of tests performed is about 8.65 Crores.

Published by The department of Science and Technology and Biotechnology