

Facility for training in biotechnology

†2180. SHRI MEGHRAJ JAIN: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) whether training facility in biotechnology is available in India, if so, the State-wise details of those facilities;

(b) whether any centres have been established for research and development in biotechnology, if so, whether those researches have been used in agriculture and other sectors, if so, the details thereof; and

(c) whether Government is contemplating to encourage private partnership in this regard, if so, the details of the benefits to be achieved through it?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY AND (SHRI Y. S. CHOWDARY): (a) Yes Sir, the Department of Biotechnology (DBT) is implementing an integrated human resource development programme to create trained manpower in the field of biotechnology by providing hands on experience to undergraduate science students under various schemes such as star college scheme, M.Sc./M.Tech. teaching programmes in 71 universities in the country, industrial training for B.Tech./M.Sc./M.Tech. biotech students and finishing schools for bridging skill gaps and enhancing employment prospects, re-training of existing faculty and scientists in advanced areas for upgrading their skills by conducting short term training courses. National Agri-Food Biotechnology Institute (NABI), Mohali, Punjab an autonomous institute of Department of Biotechnology has setup a training facility in area of agriculture, food and nutrition biotechnology. The state wise details of these facilities are given in the Statement (*See* below).

(b) Yes, Sir. The DBT has established 26 Centres of Excellence in Biotechnology Research in the country. The specific goal of these Centres is to enhance the innovative ability of the institutions and investigators with well-developed research programmes in specific areas of biotechnology. These Centres of Excellence are carrying out research in advanced and cutting-edge sectors of biotechnology such as health, environment, energy including agriculture. These Centres have published research papers in various high impact factor journals of international repute and filed/obtained patents. Various research leads have been obtained in these programmes, which are being taken forward toward developing crop varieties for abiotic and biotic stress tolerance.

(c) Yes, Sir. Innovation research grant is provided for product development through various Public Private Partnership schemes of Biotechnology Industry Research Assistance Council (BIRAC), a Public Sector Not-for-Profit' company undertaking of

† Original notice of the question was received in Hindi.

DBT to young entrepreneurs, startups and small and medium enterprises (SME). Seed funding for discovery research is provided under the Biotechnology Ignition Grant (BIG) scheme of BIRAC. BIRAC also implements Small Business Innovation Research Initiative (SBIRI) and Biotechnology Industry Partnership Programme (BIPP) to foster innovation research and product development. A total of 509 Research & Development projects including 115 collaborative projects, 296 companies, 88 academic institutes and 100 entrepreneurs, 50 new start-ups have been supported till date. Twenty three affordable products, 19 early stage new technologies and 45 new Intellectual Property (IP) have been generated.

Statement

State-wise details of training facility in biotechnology

(I) Postgraduate Teaching Programme (M.Sc./M.Tech./M.VSc.) supported by DBT:

Sl. No.	Name of University and State	Programme
Andhra Pradesh		
1.	Sri Padmavathi Mahila Visvavidyalaya, Tirupati	M.Sc. Biotechnology
Assam		
2.	Tezpur University, Tezpur	M.Sc. Biotechnology
3.	Assam Agricultural University, Jorhat	M.Sc. Agriculture Biotechnology
4.	Assam Agricultural University, Guwahati	M.VSc. Animal Biotechnology
5.	Indian Institute of Technology, Guwahati	M.Tech. Biotechnology
Bihar		
6.	Tilka Manjhi Bhagalpur University, Bhagalpur	M.Sc. Biotechnology
7.	Rajendra Agricultural University, Samastipur	M.Sc. Agriculture Biotechnology
Chhattisgarh		
8.	Indira Gandhi Agricultural University, Raipur	M.Sc. Agriculture Biotechnology
Delhi		
9.	Jawaharlal Nehru University, New Delhi	M.Sc. Biotechnology

Sl. No.	Name of University and State	Programme
10.	All India Institute of Medical Sciences, New Delhi	M.Sc. Medical Biotechnology
11.	Indian Institute of Technology, Delhi	M.Tech. Biotechnology
	Goa	
12.	Goa University, Goa	M.Sc. Marine Biotechnology
	Gujarat	
13.	Maharaja Sayajirao University of Baroda, Baroda	M.Sc. Biotechnology
14.	Sardar Patel University, Anand	M.Sc. Industrial Biotechnology
	Haryana	
15.	Guru Jambheshwar University, Hisar	M.Sc. Biotechnology
16.	Lala Lajpat Rai University of Animal Sciences, Hisar	M.VSc. Animal Biotechnology
17.	Maharshi Dayanand University, Rohtak	M.Sc. Medical Biotechnology
	Himachal pradesh	
18.	Himachal Pradesh University, Shimla	M.Sc. Biotechnology
19.	Himachal Pradesh Krishi Vishvavidyalaya, Palampur	M.Sc. Agriculture Biotechnology
	Kerala	
20.	Calicut University, Calicut	M.Sc. Biotechnology
21.	Kerala Agricultural University, Thrissur	M.Sc. Agriculture Biotechnology
22.	Cochin University of Science and Technology, Kochi	M.Tech. Marine Biotechnology
	Jammu and Kashmir	
23.	Jammu University, Jammu	M. Sc. Biotechnology
24.	University of Kashmir, Srinagar	M. Sc. Biotechnology
25.	Baba Ghulam Shah Badshah University, Rajouri	M.Sc. Bioresources and Biotechnology
26.	Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Srinagar	M.VSc. Animal Biotechnology

Sl. No.	Name of University and State	Programme
Karnataka		
27.	Gulbarga University, Gulbarga	M.Sc. Biotechnology
28.	Mysore University, Mysore	M.Sc. Biotechnology
29.	University of Agricultural Sciences, Bangalore	M.Sc. Agriculture Biotechnology
30.	University of Agricultural Sciences, Dharwad	M.Sc. Agriculture Biotechnology
Maharashtra		
31.	Savitribai Phule Pune University, Pune	M.Sc. Biotechnology
32.	Indian Institute of Technology, Mumbai	M.Sc. Biotechnology
33.	Institute of Chemical Technology, Mumbai	M.Tech. Bioprocess Technology
34.	Institute of Chemical Technology, Mumbai	M.Tech. Food Technology
35.	Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani	M.Sc. Agriculture Biotechnology
36.	Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur	M.Sc. Biotechnology
37.	Maharashtra Animal & Fishery Sciences University, Nagpur	M.VSc. Animal Biotechnology
38.	Shivaji University, Kolhapur	M.Sc. Environmental Biotechnology
Madhya Pradesh		
39.	Devi Ahilya Vishwavidyalaya, Indore	M.Sc. Biotechnology
40.	Jiwaji University, Gwalior	M.Sc. Neuroscience
41.	Nanaji Deshmukh Pashu Chikitsa Vigyan Vishwavidyalaya, Jabalpur	M.VSc. Animal Biotechnology
Meghalaya		
42.	North Eastern Hill University, Shillong	M.Sc. Biotechnology
Odisha		
43.	Odisha University of Agriculture & Technology, Bhubaneswar	M.Sc. Agriculture Biotechnology

Sl. No.	Name of University and State	Programme
44.	Utkal University, Bhubaneswar Puducherry	M.Sc. Biotechnology
45.	Pondicherry University, Puducherry Punjab	M.Sc. Biotechnology
46.	Guru Nanak Dev University, Amritsar	M.Sc. Biotechnology
47.	National Institute of Pharmaceutical Education and Research, Mohali	M.Tech. in Pharmaceutical Biotechnology
48.	Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana Rajasthan	M.VSc. Animal Biotechnology
49.	Banasthali Vidyapeeth, Banasthali Tamil Nadu	M.Sc. Biotechnology
50.	Madurai Kamaraj University, Madurai	M.Sc. Biotechnology
51.	Tamil Nadu Agricultural University, Coimbatore	M.Sc. Agriculture Biotechnology
52.	Anna University, Chennai	M.Tech. Biotechnology
53.	Annamalai University, Parangipettai Telangana	M.Sc. Marine Biotechnology
54.	University of Hyderabad, Hyderabad Uttar Pradesh	M.Sc. Biotechnology
55.	Banaras Hindu University, Varanasi	M.Sc. Biotechnology
56.	Banaras Hindu University, Varanasi	M.Sc. Molecular & Human Genetics
57.	Aligarh Muslim University, Aligarh	M.Sc. Biotechnology
58.	University of Allahabad, Allahabad	M.Sc. Biotechnology
59.	Lucknow University, Lucknow	M.Sc. Biotechnology
60.	Indian Institute of Technology, Kanpur	M.Tech. Biotechnology
61.	Narendra Deva University of Agriculture & Technology, Faizabad Uttarakhand	M.Sc. Agriculture Biotechnology
62.	Kumaun University, Nainital	M.Sc. Biotechnology

Sl. No.	Name of University and State	Programme
63.	Indian Institute of Technology, Roorkee	M.Sc. Biotechnology
64.	Govind Ballabh Pant University of Agriculture and Technology, Pantnagar	M.Sc. Agriculture Biotechnology
65.	Hemwati Nandan Bahuguna Garhwal University, Srinagar	M.Sc. Biotechnology
West Bengal		
66.	Indian Institute of Technology, Kharagpur	M.Tech. Biotechnology
67.	West Bengal University of Technology, Kolkata	M.Tech. Biotechnology
68.	University of North Bengal, Siliguri	M.Sc. Biotechnology
69.	Visva Bharati University, Santiniketan	M.Sc. Biotechnology
70.	Burdwan University, Burdwan	M.Sc. Biotechnology
71.	Bidhan Chandra Krishi Viswavidyalaya, Mohanpur	M.Sc. Agriculture Biotechnology

(II) Colleges supported under Star College Scheme by DBT:

Sl. No.	Name of College and State
Assam	
1.	Darrang College, Tezpur, Sonitpur
2.	Nowgong College, Nagaon
3.	Srikishan Sharda College, College Road, Hailakandi
4.	Kaliabor College, Kuwartol, Kaliabor
5.	Mangaldai College, Darang
6.	Jawaharlal Nehru College, Kamrup
7.	Handique Girls College, Guwahati
8.	Chaiduar College, Gohpur
9.	B.P. Chaliha College, Nagarbera, Kamrup
Chandigarh	
10.	M.C.M DAV College for women, Chandigarh
Chattisgarh	
11.	Govt. V.Y.T.P.G College, Durg

Sl. No.	Name of College and State
Delhi	
12.	Gargi College, New Delhi
13.	Maitreyi College, New Delhi
14.	Bhaskaracharya College of Applied Sciences, New Delhi
15.	Daulat Ram College for Women, Delhi
16.	Miranda House College, Delhi
17.	Ramjas College, Delhi
18.	Sri Venkateswara College, New Delhi
19.	Hans Raj College, Delhi
20.	Shaheed Rajguru College of Applied Sciences for Women, Delhi
21.	Atma Ram SanatanDharam College, University of Delhi, Delhi
Gujarat	
22.	Shree ManibhaiVirani& Smt. NavalbenVirani Science College, Rajkot
Jammu & Kashmir	
23.	College of Veterinary Sciences and Animal Husbandry, Sher-e-Kashmir University of Agriculture and Technology of Kashmir, (F.VSc. & AH), Shuhama, Srinagar
24.	Government Degree College (Boys), Udhampur
25.	Govt. College for Women, Jammu
Karnataka	
26.	St. Aloysius College Mangalore
27.	Maharani Lakshmi Ammanni College for women, Bangalore
28.	St. Agnes College (Autonomous), Mangalore
29.	St. Joseph's College, Bangalore
Kerala	
30.	Mar Ivanious College, Tiruvananthapuram
31.	St. Albert's College, Ernakulam
32.	St. Berchmans College, Changanacherry
Madhya Pradesh	
33.	Nanaji Deshmukh Veterinary Science University, Jabalpur

Sl. No.	Name of College and State
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Maharashtra

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| 34. | Vidya Pratishthan's, Arts, Science & Commerce College, Pune |
| 35. | K.C.E. Society's Moolji Jaitha College, Jalgaon |
| 36. | Birla College of Arts, Science & Commerce, Kalyan |
| 37. | St. Xavier's College, Mumbai |
| 38. | Modern College of Arts, Science & Commerce, Pune |
| 39. | Ramanarain Ruia College, Mumbai |
| 40. | Jankidevi Bajaj College of Science, Wardha |
| 41. | Modern College of Arts, Science & Commerce, Pune |
| 42. | Deccan Education Society's Fergusson College, Pune |
| 43. | Ramniranjan Jhunjhunwala College, Ghatkopar (W), Mumbai |
| 44. | K. R. T. Arts, B. H. Commerce and A.M Science College, Nashik |
| 45. | K. J. Somaiya College of Science and Commerce, Mumbai |
| 46. | Yashvantrao Chavan Institute of Science, Satara |
| 47. | Guru Nanak Khalsa College of Arts, Science and Commerce, Mumbai |
| 48. | Pune District Education Association's BaburaojiGholap College, Sangvi, Pune |
| 49. | Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College, Vashi Navi Mumbai |
| 50. | Sangamner Nagarpalika Arts, D.J Malpani Commerce and B.N. Sarda Science College, Sangamner, Ghulewadi, Ahmednagar |
| 51. | The New College, Kolhapur, Shivaji Peth, Kolhapur |

Meghalaya

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| 52. | St. Anthony's College, Shillong |
| 53. | St. Edmund's College, Shillong |
| 54. | Saint Mary's College, Shillong |

Punjab

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| 55. | S. Govt. College of Science Education & Research, Jagraon |
| 56. | Doaba College, Jalandhar |
| 57. | B.B.K. DAV College for Women, Amritsar |
| 58. | Hans Raj Mahila Maha Vidyalaya, Mahatma Hans Raj Marg, Jalandhar |
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Sl. No.	Name of College and State
59.	Kanya Maha Vidyalaya, Vidyalaya Marg, Tanda Road, Jalandhar
60.	Shanti Devi Arya Mahila College, Dinanagar, Gurdaspur
Tamil Nadu	
61.	Madras Christian College Chennai
62.	Stella Maris College Chennai
63.	PSG College of Arts & Science, Coimbatore
64.	Holy Cross College Tiruchirappalli
65.	P.S.G.R. Krishnammal College For Women, Coimbatore
66.	Nirmala College for Women Coimbatore
67.	Kongunadu Arts & Science college, Coimbatore
68.	Dwarka Doss Goverdhan Doss Vaishnav College, Chennai
69.	St. Xavier's College, Palayamkottai
70.	Ayya Nadar Janaki Ammal College (Autonomous) Srivilliputtur Road, Sivakasi Virudhunagar
71.	Justice Basheer Ahmed Sayeed College for Women, Teynampet, Chennai
72.	ShrimathiDevkunvarNanala Bhatt Vaishnav College for Women, Chromepet, Chennai
73.	St. Joseph's College, Teppakulam, Tiruchirappalli
74.	Women's Christian College, Chennai
Uttar Pradesh	
75.	Udai Pratap Autonomous College, Varanasi
76.	Dayanand Girls (PG) College, Kanpur
West Bengal	
77.	Maulana Azad College, Kolkata
78.	Lady Brabourne College, Kolkata
79.	Raja Narendralal Khan Women's College, Paschim Medinipur
80.	St. Xavier's College (Autonomous), Sarani, Kolkata