Nilanjan **Deb**

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Summary

An inventor, professor with an extraordinary record in patent publications, an advanced educational background, proven dynamic leadership and lecturing capabilities.

Professional Experience

Associate Professor *2015 - present*
Department of Agronomy,
University of Calcutta

Assistant Professor *2003 - 2015*
Department of Agronomy,
University of Calcutta

Education

Ph.D in Agronomy *2011*
(Fertilization of summer crops and mulching and seed treatment in wheat in rainfed rice based sequence)
Bidhan Chandra Krishi Viswavidyalaya
(State Agricultural University of West Bengal, India)

M.Tech in Applied Botany *(with First Class)* *1992*
(Measurement of cell membrane stability for screening drought tolerance in Arachis sp.)
Department of Agril. Engineering and Food Processing
Indian Institute of Technology, Kharagpur

M.Sc. in Agronomy *(with First Class)* *1990*
Visva Bharati University

B.Sc. in Agronomy *(with First Class)* *1988*
Visva Bharati University

Professional Affiliations

Head of the Department
Department of Seed Science and Technology and Horticulture *2016 - present*
University of Calcutta

Head of the Department
Department of Agronomy, *2007 - 2009*
University of Calcutta

Convenor, PhD Committee
Department of Agronomy, *2007 - 2015*
University of Calcutta

Honors & Awards

- Received **a distinguished inventor award** from Edward Jung (Co founder of IVIN, USA) at the Food and Health Innovation Summit in Beijing, China in the field of Agriculture (25th May, 2014).

- Was awarded a prestigious **International (European Union) fellowship "Erasmus Mundas mobility for life** at the Department of Electronic systems, Aalborg University, Denmark to work in Bioelectronics.

- Scholarships awarded:
  (i) University Merit scholarship, 1982-84
  (ii) ICAR - University Merit scholarship, 1984-88
  (iii) Merit scholarship from Zindal trust, 1988-1990
  (iv) Institute fellowship at Indian Institute of Technology, Kharagpur, 1990-1992
  (v) ICAR project fellowship at B.C.K.V, Nadia, 1992-1995

- National Tests Qualified:
  (i) **GATE (Graduate aptitude Test in Engineering)**
  (Conducted by Indian Institute of Technology, An autonomous Institute under the Government of India).
  (ii) **NET (National Eligibility Test)**
  (Conducted by Indian Council of Agricultural Research, an autonomous Institute under the Government of India, New Delhi).

Expertise in technology

I am carrying out research work on diverse field of technology. A short list of technological fields I have extensively worked is given below. I have hundreds of inventions on the following technological areas of which many are sold to US company and are patented in USA, Australia, China, wipo and also in India. My technological innovations are purchased by PEPSICO, Meat and Live stock Australia, Bill Gates Milinda Gates Foundation and other companies. My inventions are sold through stringent selection among submission from inventors worldwide.Few inventions and patents are interdisciplinary. I have many inventions not yet patented and few trade secret inventions on nanotechnology. My invented and patented naofertilizer is already launched in India and will be launched in other counties as well.

1**. Nanotechnology** (WO2014132106, US 9359265B2, US20130219979A1, US20130219979, US20160318820,china(CN104114028A),Australia (AU2012369910A1), India(IPO0154/KOL/2012),WIPO(WO2013121244A1 US20150375302A1
2**. Electrochemistry and chemical engineering** US20140377662A1 WO2014140700A1 US9577260B2 US20150052739A1 CN104419834A CN105228955A IN962KOL2013A IN734KOL2013A CN104419834B
3. **Polymer science and technology** US20170226282A1 IN-201731001688

4**. Polymeric semiconductor** US20170226282A1 IN-201631004055
5. **Electronics and sensor device** US20150140305A1 US20170226282A1
6. **Metallurgy** WO2014132106A1 US20150375302A1
7. **Agriculture** US 9359265B2, US20130219979A1, US20130219979, US20160318820, china(CN104114028A), Australia (AU2012369910A1), India(IPO0154/KOL/2012),WIPO(WO2013121244A1
8. **Mechanical engineering** Under process
9. **Food technology and food processing** US20170223990A1 US20170215460A1
10. **Electrical engineering** Under process

Patents

Dr. Deb has already published/filed/granted **53 international and national patents** in the fields of agriculture, biochemistry, electrochemistry, electronics, electronic sensors, polymer synthesis, bio polymers, water purification process, metal extractions etc. as of February, 2019.

1. US13825661 07-08-2012
2. IPO 0154/KOL/2012 15.02.2012
3. US13825661 07-08-2012
4. CN 201280069826 07-08-2012
5. WO 2013121244 A1 22.08.2013
6. US 20130219979 A1 29.08.2013
7. PCT/IB2013/052975 15.04.2013
8. IPO 0227/KOL/2013 27.02.2013
9. IPO 296/KOL/2013 14.03.2013
10. US14769808 15-04-2013
11. IPO 962/KOL/2013 20.8.2013
12. US20130219979A1 29-08-2013
13. PCT/IB2013/ 054119 20.05.2013
14. IPO/734/KOL/2013 20.06.2013
15. WO2013121244A1 22-08- 2013
16. IPO/1311/KOL/2013 19.11.2013
17. US-14/309, 554 19.06.2014
18. AU-2012369910 04/09/2014
19. CN-201410410702.7 15.08.14
20. US-14/464, 420 26.08.14
21. IN-850302-03-CN-REG 20.8.14
22. US14464420 20-08-2014
23. WO2014132106A1 04-09-2014
24. CN 104114028 22.10.2014
25. US 20140377662A1 25.12.2014
26. US 20150052739 26.02.2015
27. CN 104419834 A 18.03.2015
28. US 20150140305A1 21.5.2015
29. US 20150375302A1 31.12.2015
30. CN 105228955A 06.01.2016
31. AU2012369910 07.1. 2016
32. AU 2016202162(A1) 06.04.2016
33. US 9359265 B2 06.07.2016
34. IPO 201631004033 0 4 .2. 2016
35. IPO 201631003861 03.2.2016
36. IN-20163100405 04.02 2016
37. US15141629 28-04-2016
38. US9359265B2 07-06-2016
39. US20160318820A1 03-11-2016
40. US-15/424,662 03.2 .2017
41. US15424292 03-02-2017
42. US-15/423,432 02.02.2017
43. US9577260B2 21-02-2017
44. CN104419834B 03.05.2017

45. US15658027 24-07-2017
46. US20170215460A1 03.08.2017
47. US 2017 0223990 10.08.2017
48. US20170226282A1 10.08.2017
49. US9748616B2 29-08-2017
50. CN104114028B 22-09-2017
51. US20170324123 09.11.2017
52. US9975773B2 22.05.2018
53. US 10196319B2 05.02.2019

Patent Links:

The filed and published patents can be found in the websites like *patents.google.com; patents.justia.com; wipo.int/patents/en* and so on. A few links are given below:

- http://patents.justia.com/inventor/nilanjan-deb
- http://www.freepatentsonline.com/y2014/0377662.html
- http://worldwide.espacenet.com/publicationDetails/biblio?FT=D&CC=CN&NR=104114028A
- http://patentscope.wipo.int/search/en/detail.jsf?docId=WO2014140700&recNum=1&maxRec&office&prevFilter&sortOption&queryString&tab=PCT+Biblio
- https://www.google.com/patents/US20130219979?dq=USPTO+13%2F825%2C661&hl=en&sa=X&ei=URJFUo7nKMrtrQfd0IHgBg&ved=0CDkQ6AEwAA
- http://patentscope.wipo.int/search/en/detail.jsf?docId=WO2013121244&recNum=1&maxRec=1&office&prevFilter&sortOption&queryString=ALLNUM%3A%28PCT%2FIB2012%2F001511+++%29&tab=PC
- http://patentscope.wipo.int/search/en/detail.jsf?docId=WO2014132106
- http://worldwide.espacenet.com/publicationDetails/originalDocument?FT=D&date=20140904&DB&&CC=AU&NR=2012369910A1&KC=A1&ND=1&locale=en_EP
- http://worldwide.espacenet.com/publicationDetails/biblio?bcId=0&return=true&FT=D&CC=CN&NR=104114028A
- http://www.ipaustralia.com.au/applicant/university-of-calcutta/patents/AU2012369910/
- http://www.wipo.int/patentscope/search/en/detail.jsf?docId=WO2014140700

Publications

- Chackraborty L, Kar, Budhheswar; **Deb, N. 2018** Kinetin coated metal nanoparticles for in vitro regeneration of recalcitrant green gram(Vigna radiata L.)
- Samanta, SShirshendu; Augustina Saha, **Nilanjan Deb**, Saha, Asok **2017** Application of micronutrients on growth and productivity of hybrid rice under boro cultivationin lower gangetic alluvial soil
- Sen, Soumyajyoti; Mahanta, A.C; **Deb, N**; Chacraboty, P. 2012 Qulaity seend production of wheat(Triticum aestvumL.) as influenced by foliar application of boric acid and sodium tetra borate
- Chakraborty, S; **Deb, N**; Datta, M 2011 Effect of level and splitting of nitrogen and potassium fertilizers on summer rice (*Oryza sativa L*.) Environment & ecology29(2): 647-650
- **Deb, N**. 2009 Development and commercialization of boron nanoconstituents its application in agriculture, medicine and industry in *the CII:CU seminar Nanotechnology: University Industry Interface Creating Capabilities for Tomorrow* The Technology Campus, Calcutta University, Salt Lake, Kolkata on 10 June 2009.
- **Deb, N** 2009. A passage of chemistry to biology through 21st century in the J.C. Bose Life and work national seminar at Jadavpur University on March 20, 2009.
- **Deb, N** 2008 Nanofabricated tools in agriculture. *In* a compendium on Centre for Research in Nanoscience and Nanotechnology, submitted by University of Calcutta to Ministry of Human resource and Dev and UGC:111-114.

- **Deb, N** 2008 Application of nanotechnology in agriculture: from agronomic management to food technology in National Conference on Application of identified chemical and biological technologies in agriculture at Jadavpur University on 22-23, 2008.
- **Deb, N** 2008 Growth, yield and oil content of spring sunflower (Helianthus annuus L.) under calcium, sulphur and boron fertilization Indian Biologist 40(2) :29-33.
- Sarkar, R.K., **Deb, N**., Parya, and M.K.2007 Effect of seed treatment and foliar nutrition on growth and productivity of spring sunflower (*Helianthus annuus* L.) Indian J. Agricultural Sciences 77 (3):101-104,March 2007.
- Sarkar, R.K; **Deb, N**, Dasgupta, D.K. and Bera, S.B;2005. Relative efficiency of integrated nutrient management in terms of energy balance in rice-sunflower cropping system under coastal saline ecosystem*. Paper presented in National seminar on Plant Physiology (Crop Productivity and quality improvement through physiological interventions) in Nov 23-25, 2005.*
- Sarkar, R.K., **Deb, N**., Dasgupta, D.K., Mallick, R.B. and Bera, S.B. 2005. Role of Integrated Nutrient Mgt. for evolving sustainable rice based cropping system for coastal saline ecosystem. *paper presented in National seminar on Plant Physiology (Crop Productivity and quality improvement through physiological Interventions) in Nov 23- 25, 2005.*
- **Deb, N**, 2002 .Fertilization of summer crops and mulching and seed treatment in wheat under rainfed rice-based sequence. Unpublished Ph.D thesis. pp 1-269.
- **Deb, N**., Alam, B., Duttagupta, S and Ghosh.1996.Cell membrane stability of leaf tissues and its relationship with drought tolerance in *Arachis. Indian Journal of Exp. Biol*.34:1044- 1047.
- Das. N.R. and **Deb.N**.1995.Evaluation of productivity of some rainfed summer crops under different levels of NPK fertilizers. *Adv. Agric. Res. Indian.1995, vol3, p.141- 150.*
- Das, N.R. and **Deb, N**.1995. Rainfed jute seed germination and yields under mulch and seed treatment applied to preceding wheat. *Adv Agric Res. Indian.Vol.3.p.76-86.*
- **Deb. N**. 1992. Cell membrane stability as a measure for screening drought tolerance in Groundnut (*Arachis hypogea*). *M.Tech thesis submitted to Indian Institute of Technology, Kharagpur* .p1-135.

Seminars and Conferences

- Dr Deb is invited to be the **chairman of the International conference on Agriculture and food security**-2019(AGROFOOD 2019) to be held o Colombo on **8-9th August, 2019**

- Dr Deb participated in **International Conference on Agriculture and Allied Sciences: The productivity Food security and Ecology** organized by Bidhan chnadra Krishi Viswavidyalaya and Krishi sanskriti on 13 and 14th August,**2018**

- Dr. Deb has participated in 2nd regional Science and Technology congress(Southern region)**2017**, December,14-15 organized by Department of Higher Education, Government of West Bengal

- Dr. Deb delivered a invited lecture on **"Application of nanotechnology in Agriculture: from agronomic management to food technology** in the **National conference on application of identified chemical and biological technologies in Agriculture-08** in August 22 and August 23, 2008 organized by Department of Chemistry, Jadavpur University.

- Dr. Deb was an invited speaker and delivered a speech on **"A passage of chemistry to biology through 21st century** in the **J.C. Bose Life and work national seminar** organized by Jadavpur University on March 20, 2009.

- Dr. Deb was an invited speaker in the CII:CU seminar **Nanotechnology: University Industry Interface *Creating Capabilities for Tomorrow*** The Technology Campus, Calcutta University, Salt Lake, Kolkata on 10 June 2009.

- Dr. Deb was invited to attend a Workshop on Green Rating of Indian Iron and Steel Sector in *Kolkata* organized by **Centre for Science and Environment (a Delhi-based think-tank)** on Green Rating of Indian Iron and Steel Sector in Kolkata on 31st August 2012.

- Dr. Deb attended 21 days Summer School on **"Land evaluation using remote sensing & geographical information system (GIS)** sponsored by the I. C. A. R., New Delhi and organised by N. B. S. S. L. U. P., Regional Centre, Kolkata.

Research Projects

Research project under UGC-UPE II on sensor and systems development from 2017 Developing noble electronic sensor for automated and minimum use of pesticide on crops at pre attack stage to reduce environmental and health hazard(*Principal Investigator* Dr. Nilanjan Deb)

Evaluation of nano particulated nutrient delivery system and molecular impact assessment sponsored by **Centre for Research in Nanoscience and Nanotechnology.** *(Principal Investigator – Dr. Nilanjan Deb).*

Department of Biotechnology, Ministry of Science and Technology, Government of India sponsored collaborative Eastern region network project on Algal biofuel on Collection, characterization and screening of potential micro algae from West Bengal and Orissa coast and pilot scale demonstration of algal oil production. (2009-11) *(Principal Investigator (West Bengal): Dr. Nilanjan Deb)*.

Personal Details

- **Official address:** Department of Agronomy, Institute of Agricultural Sciences, University of Calcutta, 51/2, Hazra Road, Kolkata-700019, West Bengal, India