

## Prof. Dr. AMARENDRA NARAYAN MISRA

**Designation:** Professor, Life Sciences & Vice Chancellor (Acting)

**Formerly:** Professor of Plant Mol. Biol. & Biotechnol., UniPune  
Professor of Botany, Utkal University and  
Professor of Biosci. & Biotechnol., F.M. University

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**Post-Doc- JNU; Imperial College, London; IGER, UCW, UK**

**Visiting Professor/Researcher:** BARC (INSA), Dept. of Electronics & Physics-UniPune (DST-SERC), Uni Geneva – Switzerland, Oskia Univ – JSPS, Tokyo Univ – Japan, Univ Nevada –USA (DBT), Inst. Biophysics –BAS – Sofia – Bulgaria(DST-BAS), Lab. for Biomolecular Electronics - Inst. Biotechnol. & Genetics – NAS Ukrain – Kiev (DST-NAS), Inst. Microbiol. – CAS – Trebon –Czech (DST-CAS).

**Research:** 37 years

**University Post-Graduate Teaching Experience:** 32 years

### Area of Specialization

- ☑ Biochemistry, biophysics and molecular biology of photosynthesis.
- ☑ Biotechnology and molecular biology of adaptation of tropical plants.
- ☑ Biosensors, and Bioinformatics

**Publications:** 156

**Research Supervision:** Ph.D. 8 (awarded); M.Phil. 9 (awarded);

M.Sc. Botany 1999 to 2004 – 7; M.Sc. Biosciences 2004 to 2011. – 4; M.Sc. Biotechnology 2004 to 2011–13, M.Tech. Biotechnology 2011–2013

**Fellow:** Indian Botanical Society – FBS; Indian Society for Agricultural Biochemists – FISAB; Academy of Environmental Biology – FAEB; International Society for Tropical Crops Research and Development -FISTCRAD,

**Member:** The National Academy of Sciences (India) – MNASc.

**Completed Research Projects:** More than 18 [National and International]

### Details of past employment:

Period	Designation	Name of Institution / Organisation
Nov. 1982- Aug.1987	Assistant Professor, Pant Physiology	Rajasthan Agricultural University
Aug.1987- June2004	Senior Lecturer/ Reader/Professor Botany [Biochem. & Mol. Biol.]	Post-Graduate Department of Botany, Utkal University
Dec. 1997- Nov. 1999	Professor, Plant Mol. Biol. & Biotechnology	Post-Graduate Department of Botany, UniPune
Oct 2002 – Oct 2003	Guest Researcher/ Professor, Signal Transduction Lab.	Graduate School of Frontier Sciences, Deptt. of Integrated Biosciences, University of Tokyo
June 2004- May 2011	Professor, Biosciences & Biotechnology	Post-Graduate Department of Biosciences & Biotechnology, FM University
May 2011- continued	Professor, Life Sciences	Centre for Life Sciences, School of Natural Sciences, Central University of Jharkhand

## VISITING SCIENTISTS/ COLLABORATORS VISITED AND WORKED IN MY LABORATORY:

Prof. Reto Strasser, Switzerland. [Utkal University/ FMU/ CUJ]  
Prof. K. Stralka, Poland. [FMU/ CUJ]  
Prof. Emilia Apostolova, Bulgaria. [FMU]  
Prof. Mira Busheva, Bulgaria. [FMU]  
Dr. Gulnara Ismagulova, Kazakhstan [Utkal University]  
Prof. Ondrej Prasil, Czech [CUJ]

## OVERSEARS RESEARCHERS & PDF

Prof. Amal Ahmed, NRC, Cairo, Egypt 2013-14 – CV Raman Fellowship for African Res. [PDF].  
Mr. Patrice Adama Soubeiga, BurkinaFaso. 2014–CV Raman Fellowship for African Researchers.  
Mr. Otuechere Chiagoziem Anariochi, Redeemer's Univ., Nigeria. Part of Ph.D. work 2013.  
Dr. Hamdino Ahmed, HRI, Egypt 2012-13 – CVRaman Fellowship for African Researchers [PDF].

## PUBLICATIONS (Selected list) (156 total)

### Books published:

*Biophysics*. 2012 [Edited by Prof. A. N. Misra]. ISBN: 9535103769. InTech Open Publ.

*Plant Tissue Culture: Totipotency to Transgenic*. [Editors HP Sharma, JVV Dogra and. A N Misra]. ISBN: 8177544675. AgroBios Publ., Jodhpur.

### Peer Reviewed papers in SCI journals:

Kalaji HM, Schansker G, Ladle RJ, Goltsev V, Bosa K, Allakhverdiev SI, Brestic M, Bussotti F, Calatayud A, Dąbrowski P, Elsheery NI, Ferroni L, Guidi L, Hogewoning SW, Jajoo A, [Misra AN](#), Nebauer SG, Pancaldi S, Penella C, Poli D, Pollastrini M, Romanowska-Duda ZB, Rutkowska B, Serôdio J, Suresh K, Szulc W, Tambussi E, Yannicari M and Zivcak M (2014) Frequently asked questions about in vivo chlorophyll fluorescence: practical issues. *Photosynthesis Research* DOI 10.1007/s11120-014-0024-6.

Apostolova EL, Rashkov G, Pouneva I, Dankov K, Grigorova I, [Misra AN](#) (2014) Effect of UV-B radiation on photosystem II functions in Antarctic and mesophilic strains of a green alga *Chlorella vulgaris* and a cyanobacterium *Synechocystis salina*. *Indian J. Plant Physiol.* 19:111-118. DOI 10.1007/s40502-014-0084-9

[Misra AN](#), Vladkova R, Singh R, Misra M, Dobrikova AG and Apostolova E L (2014) Action and target sites of nitric oxide in chloroplasts. *Nitric Oxide* 39: 35–45. <http://dx.doi.org/10.1016/j.niox.2014.04.003>

Barh D, Barve N, Gupta K, Chandra S, Jain N, Tiwari S, Leon-Sicaireos N, Canizalez-Roman A, dos Santos AR, Hassan SS, Carneiro AR, de Castro Soares S, de Paula Castro TL, Miyoshi A, Silva A, Kumar A, [Misra AN](#), Blum K, Braverman ER and Azevedo V (2013) Exoproteome and secretome derived broad spectrum novel drug and vaccine candidates in *Vibrio cholerae* targeted by piper betel derived compounds. *PLoS ONE* 8(1): e52773.

Rashkov G D, Dobrikova AG, Pouneva ID, [Misra AN](#) and Apostolova E (2012) Sensitivity of *Chlorella vulgaris* to herbicides. Possibility of using it as a biological receptor in biosensors. *Sensors and Actuators B* 161: 151-155.

Apostolova E, Dobrikova AG, Rashkov GD, Dankov KG, Vladkova RS and [Misra AN](#) (2011) Prolonged sensitivity of immobilized thylakoid membranes in cross-linked matrix to atrazine. *Sensors and Actuators B* 156: 140–146

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Vladkova R, Dobrikova AG, Singh R, [Misra AN](#) and Apostolova E (2011) Photoelectron transport ability of chloroplast thylakoid membranes treated with NO donor SNP: Changes in flash oxygen evolution and chlorophyll fluorescence. *Nitric Oxide: Biology and Chemistry* 24: 84-90.

[Misra AN](#), Misra M and Singh R (2011) Nitric oxide ameliorates stress responses in plants. *Plant Soil Env.* 57 (3): 95-100.

Tunc-Ozdemir M, Miller G, Song L, Kim J, Sodek A, Koussevitzky S, [Misra AN](#), Mittler R and Shintani D (2009) Thiamin confers enhanced tolerance to oxidative stress in *Arabidopsis*. *Plant Physiol.* 151(1): 421–432. doi: 10.1104/pp.109.140046.

[Misra AN](#), D Latowski and K Strzalka (2006) The xanthophylls cycle activity in kidney bean and cabbage leaves under salinity stress. *Russian J. Plant Physiol.* 53, 102-109.

Biswal AK, Dilnawaz F, Ramaswamy NK, David KAV and [Misra AN](#) (2002) Thermoluminescence characteristics of sodium chloride salt stressed Indian mustard seedlings. *Luminescence*, 17, 135-140.

[Misra AN](#), Biswal AK and Misra M (2002) Physiological, biochemical and molecular aspects of water stress responses in plants, and the biotechnological applications. *Proc. Nat. Acad. Sci. (India)* 72.B (II), 115-134.

[Misra AN](#), Srivastava A and Strasser RJ (2001) Utilisation of fast Chlorophyll *a* fluorescence technique in assessing the salt/ion sensitivity of mung bean and brassica seedlings. *J. Plant Physiol.*, 158, 1173-1181.

Biswal AK, Dilnawaz F, David KAV, Ramaswamy N K and [Misra AN](#) (2001) Increase in the intensity of thermoluminescence Q-band during leaf ageing is due to a block in the electron transfer from Q<sub>A</sub> to Q<sub>B</sub>. *Luminescence*, 16, 309-313.

[Misra AN](#), Sahu SM, Misra M, Singh P, Meera I, Das N, Kar M and Sahu P (1997) Root growth of a salt susceptible and a salt resistant rice (*Oryza sativa* L.) during seedling establishment under NaCl salinity. *J. Agron. Crop Sci.*, 178, 9-14.

[Misra AN](#), Ramaswamy NK and Desai TS (1997) Thermoluminescence studies on photoinhibition of pothos leaf discs at chilling, room and high temperature. *J. Photochem. Photobiol. B: (Biol.)*, 38, 164-168.

[Misra AN](#), Sahu SM, Misra M, Singh P, Meera I and Das N (1997) Sodium chloride induced changes in leaf growth, and pigment and protein contents in two rice cultivars. *Biol. Plant.*, 39, 257-262.

[Misra AN](#), Hall S and Barber J (1991) The isolated D1/D2/Cyt b559 complex of photosystem two reaction centre possesses a serine type endopeptidase activity. *Biochim. Biophys. Acta*, 1059, 239-242.

[Misra AN](#) and Misra M (1987) Effect of age and rehydration on greening of wheat leaves. *Plant Cell Physiol.*, 28, 47-51.

[Misra AN](#) and Misra M:(1986) Effect of temperature on senescing rice leaves. I. Photoelectron transport activity of chloroplasts. *Plant Science*, 46, 1-4.

[Misra AN](#) and Biswal UC (1982) Differential changes in electron transport properties of chloroplasts during aging of attached and detached leaves and of isolated chloroplasts. *Plant Cell Env.*, 5, 27-30.

[Misra AN](#) and Biswal UC (1980) Effect of phytohormones on the chlorophyll degradation during aging of chloroplasts *in vivo* and *in vitro*. *Protoplasma*, 105, 1-8.

#### **Invited reviews:**

[Misra AN](#), Dilnawaz F, Misra M and Biswal AK (2001) Thermoluminescence in chloroplasts as an indicator of alterations in photosystem II reaction center by biotic and abiotic stress. *Photosynthetica*, 39, 1-9.

[Misra AN](#) and Biswal AK (2000) Thylakoid membrane protein kinase activity as a signal transduction pathway in chloroplasts. *Photosynthetica*, 38, 323-332.

### **Book Chapters:**

Apostolova EL and Misra AN (2014) Alterations in structural organization affect the functional ability of photosynthetic apparatus. Mohammed Pessaraki (ed.) Handbook of Plant and Crop Physiology. Expanded 3<sup>rd</sup> Edition. Ch. 3. CRC Press, Taylor & Francis Group. Pp. 103-120.

Joshi P, Misra AN, Nayak L and Biswal B (2013) Response of mature, developing and senescing chloroplast to environmental stress. *In: Plastid Development in Leaves during Growth and Senescence*. B. Biswal, Krupinska and Biswal UC (eds.), Advances in Photosynthesis and Respiration (Govindjee and Sharkey TD, Series Eds.). Vol. 36, pp. 641-668.. DOI:10.1007/978-94-007-5724-0-28. Springer: Dordrecht. SBN: 978-94-007-5723-3 (Print) 978-94-007-5724-0 (Online).

Misra AN, Misra M and Singh R (2012) Chlorophyll fluorescence in plant biology. Biophysics. (Ed. Misra A N) ISBN 979-953-307-290-5 . Chapter 7, pp. 171-192.

Misra AN, Misra M and Singh R (2012) Thermoluminescence in chloroplast thylakoid. Biophysics. (Ed. by Misra A N). ISBN 979-953-307-290-5. Chapter 6, pp. 155-170.

Misra M, Misra AN and Singh R (2012) Nitric oxide signaling during senescence and programmed cell death in leaves. Chemical Biology (Ed. by Ekinci D). ISBN 979-953-307-784-9.

Misra M and Misra AN (2012) Sterilization techniques in plant tissue culture. *In Plant Tissue Culture*. JVV Dogra and HP Sharma (eds.).

### **Symposium Articles/ Proceeding Volumes**

Biswal AK, Ramaswamy NK, Ussuf KK, Mathur M and Misra AN (2001) Thylakoid membrane protein kinase activity in NaCl salt stressed mung bean and Indian mustard seedling. *In Image Analysis in Materials and Life Sciences* (Babu Rao C, ed.) Proc. SCIAMAL-99.

Misra AN, Latowski D and Strzalka K (2003) De-epoxidation state of lutein and violaxanthin in the seedlings of salt sensitive and salt tolerant plant grown under NaCl salt stress. Plant Biology 2003, Honolulu, Hawaii, USA 25-30 July 2003.

Misra AN and Terashima I (2003) Changes in photosystem activities during adaptation of *Vicia faba* seedlings to low, moderate and high temperatures. Plant Cell Physiol., Abstract, Annual Symp.JSPP, Nara, Japan 27-29 March 2003.

Misra AN, Srivastava A and Strasser RJ (2007) Elastic and plastic responses of *Vicia faba* leaves to high temperature and high light stress. Gordon Conference on "Temperature stress in plants", Ventura, USA 25-30 Jan. 2007.