

Ashish Bhatnagar



Date of Birth: June 17th, 1965

Email: *bhatnagarashis@gmail.com*

Phone: Office: 91-145-2787056 Ext 286 Residence: 91-145-2644234, Mobile 91-9462788558, **Fax:** Office: 91-145-2787049

Current Occupation: Professor and Head, Department of Microbiology
Director Algae Biofuel & Biomolecules Centre
Maharshi Dayanand Saraswati University, Ajmer 305009 Rajasthan, India.

Formerly: Post Doctoral Research Associate, Biorefining and Carbon Cycling Program, Department of Biological and Agricultural Engineering, The University of Georgia, Athens GA 30602.

Education

Ph.D Microbiology, Indian Agricultural Research Institute, New Delhi, India, 1993

M.Sc Microbiology, Indian Agricultural Research Institute, New Delhi, India, 1989 **IARI Gold Medal**

B.Sc Agriculture, Jawahar Lal Nehru Agriculture University, Jabalpur (M.P.), India, 1987 **Aspee Gold Medal and Bank of India Cash Prize**

Field of specialization:

Main field	Specialization	Sub/Super specialization
Microbiology	Algae Biofuel	Cultivation systems
	Bioremediation	Wastewater remediation, biosorption
	Microbial Ecology	Cyanobacteria, Green algae Biodiversity
		Calcicolous algae, microbiotic crusts
	Stress Biology	Osmotic, fluoride stress
	Bioprospecting	Algae Biofuel, biopolymers

Awards/Recognitions

- **Amongst Top 25 of Science Direct** Science Direct listed [Microalgae cultivation in a wastewater dominated by carpet mill effluents for biofuel applications](#). By Chinnasamy, S.; **Bhatnagar, A.**; Hunt, R.W.; Das, K.C. *Bioresource Technology*, 101 (9): 2010:3097-3105
Science Direct: A service for Elsevier Journals with a database of 2500 journals and 11 million users worldwide. Updates its list of top 25 hottest Articles based on number of downloads of an article. It has 236 journals in Agricultural and Biological Sciences
- **Third best paper award** by International Journal of Molecular Science, 2013
- **Rotary Club Ajmer Metro Certificate of Appreciation** for outstanding performance in the field of education 2016
- **Young Scientist (Bioenergy) Award**, 2010: Society for Plant Research
- **Commonwealth Academic staff fellowships** Reserve list for the project titled Cyanobacterial Biofilms: Architecture and Response to Stress 2007
- **Selected as Senior Manager** for Algal Biofuels Project of Reliance Energy, Hyderabad at Kakinada, but did not join **2007**
- **IARI Senior Research Fellow** 1989-93 for Ph D in Microbiology
- Qualified CSIR-UGC National Eligibility Test for lecturership in Life Sciences 1990
- **IARI Gold medal** 1989 for Overall performance in M.Sc. Microbiology
- **IARI Junior Research Fellow** 1987-89 for M.Sc. in Microbiology
- **Aspee Gold medal** 1987 for obtaining maximum marks during B.Sc. (Ag) at JN Agriculture University Jabalpur in courses of Entomology and Plant Pathology
- **Bank of Baroda Cash prize** 1987 for obtaining maximum marks during B.Sc. (Ag) at JN Agriculture University Jabalpur in courses of Economics
- **University Merit scholarship** from 1984-1987 during B.Sc. (Ag) at JN Agriculture University, Jabalpur (M.P.)
- **2nd best poster award** to Neetu Manglani for the poster paper titled Production and optimization of alkaline serine keratinase exhibiting potential dehairing activity. Neetu Mangalani, Monica Bhatnagar, **Ashish Bhatnagar** in the International Conference on Biotechnology: A rendezvous with Basic Sciences for Global Prosperity. 26-27 Dec 2012, New Delhi. Society for Plant Research, New Delhi
- **Third Best Poster Award** to Laxmi Parwani in the International Conference on Biotechnology: A Rendezvous with Basic Sciences for Global Prosperity for the Poster paper titled Potential of Gum Acacia in wound management: A new approach by Laxmi Parwani, Monica Bhatnagar, **Ashish Bhatnagar** held at NASC Complex, New Delhi December 26-27, 2012
- **Third position for Young Scientist Award** to Laxmi Parwani in the International Conference on Microorganisms in Environmental Management and Biotechnology for the oral presentation titled Biocompatible polymers from desert cyanobacteria for wound management by Laxmi Parwani, Monica Bhatnagar, **Ashish Bhatnagar**, Vinay Sharma held at Barkatullah University Bhopal July 1-3, 2011

- **Third Best Poster Award** to Laxmi Parwani for the poster paper titled A novel biocompatible wound dressing based on gum Acacia by Laxmi Parwani, Monica Bhatnagar, **Ashish Bhatnagar**, Vinay Sharma in the International Conference on Green Chemistry at Jaipur organized by Central University of Rajasthan December 7-9, 2011

- **Citations indices based on Google Scholar**

	All	Since 2014
Citations	2267	1590
h-index	14	14
i10-index	20	17

Techniques developed

1. **US Patent Granted** :Method and System of Culturing an Algal Mat. Das, Cannon, Bhatnagar and Chinnasamy 13 May 2014, US 8,722,389 B1 Method uses artificially generated fog to cultivate algae
2. Using mixotrophic algae to grow in eutrophic wastewaters for remediation and produce Biofuel :Ashish Bhatnagar, Senthil Chinnasamy and Keshav C. Das. April 20,2009. Mixotrophic algae and their consortia for the production of algal biofuel feedstock in wastewater fed open ponds. S. No. 61/170,683. Docket No. (attorney): 222102-8880; UGARF No. 1454
3. Use of Carpet industry wastewater for polishing the treated wastewater and producing feedstock for Biofuel: Senthil Chinnasamy, Ashish Bhatnagar, Ryan W. Hunt, Ronald Claxton, Mark Marlowe and Keshav C. Das, 2009. Renewable biomass, biofuel and bioproducts from carpet industry wastewater (treated and untreated) using mixotrophic alga(e). UGARF No. 1453.
4. Using poultry litter as a cheap source of nutrient to cultivate algae: Keshav C. Das, Ashish Bhatnagar, Ryan W. Hunt and Senthil Chinnasamy. May 1, 2009. Animal waste derived organic plankton booster as low cost renewable nutrient source for algaculture to produce biofuels. UGARF No. 1455. EFS ID No.: 5257108, Application No. 61174512, Confirmation No. 1076.
5. First to indicate possibility for biosorptive removal of fluoride that generated a series of papers by Venkat Mohan et al. (Fluoride 33, 2000; Biotech Lett 24, 2002)
6. A novel method of interactive biosorption for anion (as fluoride) removal (Biotech Lett 24, 2002). Though majority of work on biosorption has been done by Voleski's lab, yet we set a priority on removal of anions that too by an interactive method removing by sorption, cations followed by anions.
7. Combination of plant hormones:1-naphthaleneacetic acid (NAA), gibberellic acid (GA) and zeatin shows significant growth improvement in algae (ABB 162, 2010)
8. Developed a cheap medium to cultivate mixotrophic algae using extracts of poultry litter (AE 88, 2011)

Mechanism deciphered

1. Resistance of green algae and susceptibility of cyanobacteria to fluoride (Fluoride 33, 2000)
2. Survival mechanisms against thermal stress in desert algae are triggered when undergoing matrix stress and not osmotic stress (IJA 16, 2014).
3. A quicker healing of wounds might have been triggered by ROS control by the biopolymers of Acacia, Moringa and Cyanobacteria (IJPPS, JAP)

Management cues suggested

1. Fitted r- and K-selection model to the waste stabilization pond process implicating that the closed agitated bioreactors must use single celled organisms and semi natural remediation ponds shall use a consortium that utilizes all spatial niches (JEB 20, 1999)
2. Plant diversity in deserts needs to be conserved for conservation of cyanobacterial diversity (JAE 72, 2008)
3. Cell rupturing gives better lipid extraction from algae without altering the FAME composition. (BT 126, 2012)

4. Wastewater from carpet mills can be used to grow algae for fuel (BT 101, 2010)

Discovered

1. Thermal stress is alleviated when grown attached to the solid surfaces (IJA 16, 2014)
2. *Chroococcus cohaerens* (2412), an isolate from sedimentary rock grit, - a true osmophile requiring - 0.5 MPa osmotic water potential for optimal growth (IJA 16, 2014)
3. Mixotrophic strains of *Chlorella minutissima* (ABB 161, 2010), *Scenedesmus bijuga* and *Chlamydomonas globosa* (BT 101, 2010)
4. *Chlorella minutissima* is a versatile and potent wastewater remediation agent* (Book, ABB 161, 2010)
5. Majority of lithophytic cyanobacteria produce emulsifying molecules (turbidity at 30' varied from 11-37% of 0 min)
6. Cyanobacteria are more susceptible to fluoride than green algae (Fluoride 33, 2000)
7. Wide spread fluoride tolerance in cyanobacteria and green algae (IJM 44, 2004)
8. Waste from fermentation industry can be used for sorptive removal of fluoride (IJB 2, 2013)
9. Physical disintegration and dissolution of limestone by edaphic cyanobacteria (NSCNF, 1992)
10. Chlorophyll a is a deceptive parameter to determine survival under desiccation (IJA 16, 2014).
11. Cyanobacteria are known to avoid plant vicinity in general but since plant cover in desert does not create shade, the diversity increases near plants (JAE 72, 2008) Rajasthan is a big treasure house of mucilaginous, filamentous and heterocystous cyanobacteria (JAE 72, 2008)
12. Desert has low species richness of cyanobacteria but microscale habitat variation adds more and more new forms (JAE 72, 2008)
13. Extent of morphotypic diversity of cyanobacteria in Thar desert (JAE 72, 2008), saline playas (JABU 1, 2010) and exposed rock surfaces and outcrops (First estimate of diversity)
14. CO₂ increase ameliorates effect of thermal stress in *Chlorella vulgaris* (IJMS 10, 2009) and *Anabaena fertilissima* (JFE 24, 2009).

Publications: 45 (https://scholar.google.co.in/citations?hl=en&user=rnitDjkAAAAJ&view_op=list_works)

DNA Sequences submitted to NCBI: 30

Papers Reviewed

1	Journal of Indian Botanical Society: No. JIBS 91.9.01 UV absorbing pigments in terrestrial cyanobacteria from various archaeological monuments of India 2001
2	Phykos: 7.10.2001: The relationship between phytoplankton and physicochemical variables in two ponds of Bakerganj, Bangladesh.
3	Phykos: MS No. 803/99 dtd 5.3.1999
4	Phykos: dtd 1.8.95
5	Current Science P 349 RAPD Analysis of Soil Microbial Diversity in Western Rajasthan 27.7. 2007
6	Applied Biochemistry & Biotechnology: ABAB-1541 Light regime characterization in an airlift photobioreactor for production of microalgae with high starch content dtd 20.7.2010
7	Arid Land Research and Management: UASR-2010-0643 - Distribution and composition of cyanobacteria and

	microalgae associated with biological soil crusts in the Gurbantunggut Desert, China dtd 15.8.2010
8	Bioresource Technology: BITE-D-10-00602 Algal Biomass Production of High Rate Pond with Natural Water for Biofuel Bioresource Technology dtd 15.8.2010
9	Bioresource Technology: Application of rbcL based molecular diversity analysis to algae in wastewater treatment plants 25.10.2010
10	Bioresource technology: BITE-D-10-02398 Molecular Diversity of Algae Assemblages at Wastewater Treatment Plants dtd. 8.11.10
11	Saline Systems: dtd 30.1.2012
12	African Journal of Biotechnology: Antibacterial activities of the extracts of cyanobacteria and green algae isolated from desert soil in Riyadh, Kingdom of Saudi Arabia dtd 8.2.12
13	Aquatic Biosystems: A preliminary estimation of the algal feedstock production potential of Tampa Bay utilizing carbon dioxide emissions and wastewater effluent by Dalrymple et al. dtd 19.2.2012
14	Taylor & Francis Book Chapter: Harvesting of Microalgal Biomass 15.6.2012
15	Journal of Crop Improvement WCIM-2012-0139Potential evaluation of Pseudomonas for improving phosphorus availability in soil under pearl millet 21.9.12
16	Journal of Agricultural Science and Technology: Microalgae Harvesting Using Electroflocculation" J. 2684-90 dtd 7.11.12
17	Applied Energy: Application Prospects of Microalgae Cultivation Technology in Comprehensive Utilization of Sewage, CO ₂ Emissions and Discharged Heat dtd 20.1.13
18	Journal of Applied Phycology: JAPH-D-13-00038 Effect of water extracts of seaweeds on the growth of seedling roots of buckwheat (<i>Fagopyrum esculentum</i> Moench) dtd 19.2.13
19	Biological Agriculture & Horticulture: TBAH-2013-0062 Deciphering the biochemical spectrum of novel cyanobacterium based biofilms for use as inoculants dtd 28.2.13
20	PNAS India, Section B; biological Sciences: NASB-D-13-00057 Scope for Algae Based Ponds for Economical Treatment of Municipal Wastewater dtd 18.3.2013
21	IIS University Journal: An Evaluation of Physicochemical properties to Assess Quality of Treated Effluents from Jaipur Dairy dtd. 15.4.13
22	Desalination & Water Treatment: TDWT-2013-0293. Wastewater valorization adopting the microalgae accelerated growth. Dtd 19.5.2013
23	J Arid Environment: JAE08-273R2 Distribution and community structure of algal morphotypes in the Hexi Gobi Desert of China dtd 1.6.13
24	Bioresource Technology: BITE-D-13-02285R1: FT-IR/ATR Univariate and Multivariate Calibration Models for <i>in situ</i> Monitoring of Sugars in Complex Microalgal Culture Media dtd. 1.6.2013
25	Bioprocess & Biosystems Engineering: BPBSE 13-0165. Carbon dioxide sequestration and biofuel production using microalgae: A review of current work dtd. 5.6.2013
26	NRCSS Journal: MS 37. Microbiological profile of coriander (<i>Coriandrum sativum</i> L.) crop rhizosphere in Rajasthan and screening for auxin producing rhizobacteria dtd 4.8.13
27	Current Science 5987-11790-1-RV Adapting technologies for efficient feedstock production from microalgae for biodiesel 25.1.14
28	PNAS India, Section B; biological Sciences: NASB-D-14-00172 Role of Blue Green Algae in Crop protection 29.6.2014
29	Frontiers in Energy Research Design, Construction and Validation of Internally-Lit Air Lift Photobioreactor for Growing Algae 2.10.14
30	Algal Research: ALGAL-D-14-00204 Naturally floating microalgal mat for insitu bioremediation and potential for biofuel production 5.10.14
31	Saudi Journal of Biological Sciences SJBS-D-14-00350 Improvement of antioxidant and defense properties of Tomato (var. Pusa Rohini) by application of augmented compost 17.10.14
32	Environmental Monitoring and Assessment EMAS-D-15-00076 Identification and analysis of polyaromatic hydrocarbons (PAHs)- biodegrading bacterial strains from refinery soil of India 9.2.15
33	IIS University Journal: Absolute quantification of Heat Shock Protein 70 gene in Jamunapari goat breed 11.4.15
34	Applied Water Science AWSC-D-15-00060 Experimental study for strategic enhancement of <i>Desertifilum tharensense</i> MSAK01 on Dairy Wastewater: An integrated approach for waste treatment and enriching biomass 27.4.15
35	PNAS India, Section B; biological Sciences: NASB-D-15-00350 Microalgal biodiesel production: economic, environmental and social sustainability Aspects 14.6.15
36	Fuel. JFUE-D-15-02138 Mixotrophic cultivation of <i>Nephroselmis</i> sp. using industrial wastewater for enhanced microalgal biomass production. 4.9.2015
37	Journal of Basic Microbiology. jobm.201500558 Efficacy of two versatile rhizobacteria (<i>Stenotrophomonas maltophilia</i> and <i>Burkholderia cepacia</i>) isolated from soils of Northern Western Himalaya's. 9.9. 2015
38	Marine Genomics. MARGEN D-15-00186 De-novo assembly and characterization of <i>Chlorella minutissima</i> UTEX2341 transcriptome by paired-end sequencing and the identification of genes related to the biosynthesis of biofuels 15.10.15
39	Applied Biochemistry & Biotechnology. ABAB-D-16-00634 Enhancement of Lipid Production of <i>Chlorella Pyrenoidosa</i> Cultivated in Municipal Wastewater by Magnetic Treatment 15.5.16
40	Land Degradation and Development: SHIFTING CYANOBACTERIAL DIVERSITY IN RESPONSE TO AGRICULTURAL SOILS ASSOCIATED WITH DUST EMISSION 28.8.16
41	IIS University Journal: The effect of some location specific Rhizobial strains on Dry weight and Nitrogen content of Urid bean (<i>Vigna mungo</i> (L.) Hepper from Marathwada 26.10.16

42	Applied Water Science: Strategic enhancement of Desertifilumtharensense MSAK01 on dairy wastewater: an integrated approach for remediation and biomass production 27.11.2016
43	Frontiers in Energy Research. Phycospheric native bacteria Pelagibacabermudensis and Stappia sp. Ameliorate biomass productivity of Tetraselmisstriata (KCTC1432BP) in co-cultivation system through mutualistic interaction. 2.1.17
44	Current Science: Current Status of Algal Biodiesel: A Review 7.3.17
45	Water Science & Technology: Formulation of a minimal nutritional medium for enhanced lipid productivity in Chlorella sp. and Botryococcus sp. using Response Surface Methodology 28.6.2017
46	Bioresource Technology BITE-D-18-01383R1 Lipid accumulation of Chlorella pyrenoidosa under mixotrophic cultivation using acetate and ammonium 23.4.2018
47	Physiology and Molecular Biology of Plants PMBP-D-18-00164 Evaluation of carbon capture in competent microalgae consortium for enhanced biomass, lipid and carbohydrate production 2.6.2018

Project proposals evaluated

1. **UGC** major research project: Biomonitoring and phytoremediation of radioactive pollution. PI: Dr. BL. Jagetiya, MLV College, Bhilwara 25.9.2001
2. **Department of Biotechnology, GOI:** DO No. BT/PR6404/BCE/08/418/2005 dtd 30.9.2005. Carbon sequestration by Azolla-Anabaena symbiotic system by Dr. S. Thiyagarajan
3. **Department of Science & Technology, Rajasthan** Travel Grant proposal for Banasthali Vidyapeeth, Banasthali
4. **Department of Science & Technology, Rajasthan** Major Research projects of Veena Sharma, Arti Prasad, RK Gothwal, Shilpa Rijhwani, Sonica Saxena, Shruti Mathur and Poonam Narula
5. **Department of Biotechnology, GOI:** Carbon Sequestration and Industrial Wastes Utilization for Biofuels (Biohydrogen and Biodiesel) Production by Microalgal Diurnal Metabolic Cycle Arun and Karuppuchamy
6. **The Rajiv Gandhi Science & Technology Commission (RGSTC), Govt of Maharashtra** 2014: Prevalence, awareness and treatment of malnutrition among children in tribal area of Shirpur; Role of students as a community pharmacist for nutrition development in children

Research Projects

1. Principal Investigator in Department of Biotechnology, Government of India funded **Satellite Centre for Microalgal Biodiversity in Arid Zones of Rajasthan**. Outlay: Rs. 19 lakh+ (completed on 31.10.02).
2. Co- Principal Investigator in Ministry of Environment & Forests funded **Prosthecate Bacteria & Micrococcus Centre (ProMiC)**, Outlay: Rs. 33.61 lakh 2000-2012.
3. Director **Algae Biofuel & Biomolecules Centre:**A Study Centre established for Interdisciplinary Research & Outreach Program involving Faculty from Microbiology, Food Science & Nutrition, Environmental Science, Economics and Management
4. Principal Investigator in Department of Biotechnology, Government of India funded project:**Developing low water demanding cultivation system of algae for Rajasthan**. **Outlay:** Rs. 46.45 lakh (30.1.17 to 30 July 18).
5. Co-Principal Investigator in Parenteral Drug Association India Chapter funded project: **Moist bioactive cellulose biocomposites for advanced wound care**. Outlay Rs. 50 lakh (20.3.2017-19.3.2022).

Ph.D. awarded: 4

S No	Name of Research Scholar	Topic	Year Awarded
1	Mukesh K. Garg	Ecophysiological studies on some edaphic and lithic microalgae of Rajasthan	2006
2	Md. Basha Makandar	Morphotypic and functional diversity of some microalgae in arid zones of Rajasthan	2007
3	Jaspreet Singh	Diversity and physiology of bacteria tolerant to nutritional extremes	2012

4	Hemraj Chhipa	Bioaccumulation and interactive ion sorption in fungi as a means to remove fluoride	2012
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Publications

Microbial Ecology and Diversity

1. 1992. Ashish Bhatnagar & Paromita Roychoudhury. Dissolution of limestone by cyanobacteria. In: *Proc. Natl. Symp. Cyanobacterial Nitrogen Fixation*. B.D. Kaushik (ed). Today & Tomorrow's Pub. Delhi. pp 331-5. Citations 9
2. 1999. Ashish Bhatnagar. Development of r- and K-selection model in the waste stabilisation pond system. *Journal of Environmental Biology (JIF 0.684)*. 20 (2):115-120. Citations 2.
3. 2005. Ashish Bhatnagar and Monica Bhatnagar. Microbial diversity in desert ecosystems. *Current Science (JIF 0.935)*. 89 (1): 91-100. Citations 112.
4. 2005. BN Johri, BN Ganguly, SK Goel, JS Viridi, AK Tripathi, RK Jain, DN Kamra, Ashish Bhatnagar Microorganisms diversity: Strategy and action plan. *Current Science (JIF 0.935)*. 89 (1): 151-154. Citations 12.
5. 2008. Ashish Bhatnagar, Mahammad Basha Makandar, Mukesh Kumar Garg & Monica Bhatnagar. Community structure and diversity of cyanobacteria and green algae in Thar desert of India. *Journal of Arid Environments (JIF 1.772)* 72:73-83. Citations 33.
6. 2010. Mohammad Basha Makandar, Ashish Bhatnagar 2010 Morphotypic diversity of microalgae from arid zones of Rajasthan (India). *Journal of Algal Biomass Utilization 1 (2)*: 74-92. Citations 7
7. 2010. Mohammad Basha Makandar, Ashish Bhatnagar 2010 Biodiversity of microalgae and cyanobacteria from freshwater bodies of Jodhpur, Rajasthan (India). *Journal of Algal Biomass Utilization 1 (3)*: 54-69. Citations 7
8. 2016. Subramanya Rao, Yuki Chan, Donnabella C. Bugler-Lacap, Ashish Bhatnagar, Monica Bhatnagar, Stephen B. Pointing. Microbial Diversity in Soil, Sand Dune and Rock Substrates of the Thar Monsoon Desert, India. *Indian Journal of Microbiology*. 56 (1): 35-45. Citations 7
9. 2017. Luke R. Thompson, Jon G. Sanders et al. and The Earth Microbiome Project Consortium. A communal catalogue reveals Earth's multiscale microbial diversity. *Nature* 551: 457-463. Citations 9

Bioremediation and Algae Biofuel

10. **Book** 1998. Ashish Bhatnagar. *Microbiology-A remediation Study*. RBSA Publ., Jaipur
11. 1998. Ashish Bhatnagar & Monica Bhatnagar. Algae based wastewater remediation systems. In: *Advances in Phycology*. B.N. Verma, AN Kargupta & SK Goyal (eds). pp. 381-98. APC Publ. Pvt. Ltd., New Delhi. Citations 1
12. 2001. Ashish Bhatnagar & Monica Bhatnagar. Strategies to employ algae and cyanobacteria for wastewater remediation. In: *Innovative Approaches in Microbiology*. D.K. Maheshwari & R.C. Dubey (eds). Bishen Singh Mahendra Pal Singh, Dehra Dun. pp. 379-403. Citations 3
13. 2008. Ashish Bhatnagar. Natural and xenobiotic compounds in the environment- Transformation, bioaccumulation, biomagnification in air, water and soil. E-book: *Environmental Microbiology for graduate students* by National Institute of Science Communication and Information Resources. <http://nsdl.niscair.res.in/handle/123456789/112/items-by-author?author=Bhatnagar%2C+Ashish>.
14. 2009. Chinnasamy S., Ramakrishnan B., Bhatnagar A. & Das Keshav C. Biomass production potential of a wastewater alga *Chlorella vulgaris* ARC 1 under elevated levels of CO₂ and temperature. *International Journal of Molecular Science* 10(2): 518-532. MDPI Open access publishing, Switzerland. JIF 2.464. Citations 173.
15. 2009. Hunt R.W., Zavalin, A., Bhatnagar Ashish, Chinnasamy Senthil and Das Keshav C. Electromagnetic Biostimulation of Living Cultures for Biotechnology, Biofuel and Bioenergy Applications. *International Journal of Molecular Science* 10: 4515-4558. MDPI Open access publishing, Switzerland. JIF 2.464. Citations 88.
16. 2009. Chinnasamy S., Ramakrishnan B., Bhatnagar A., Goyal S.K. & Das K.C. Enhanced carbon and nitrogen fixation under elevated CO₂ and temperature by *Anabaena fertilissima*. *Journal of Freshwater Ecology* 24(4): 587-596. Taylor & Francis. JIF 0.394. Citations 8

17. 2010. Senthil Chinnasamy, Ashish Bhatnagar, Ryan W. Hunt and K.C. Das. Microalgae cultivation in a wastewater dominated by carpet mill effluents for biofuel applications. *Bioresource Technology* 101: 3097–3105. Elsevier. JIF 4.750. Citations 509.
18. 2010. Senthil Chinnasamy, Ashish Bhatnagar, Ronald Claxton and K.C. Das. Biomass and bioenergy production potential of microalgae consortium in open and closed bioreactors using untreated carpet industry effluent as growth medium. *Bioresource Technology* 101: 6751-6760. Elsevier. JIF 4.750. Citations 110.
19. 2010. Ashish Bhatnagar, Monica Bhatnagar, Senthil Chinnasamy and K. C. Das. *Chlorella minutissima*—A Promising Fuel Alga for Cultivation in Municipal Wastewaters. *Applied Biochemistry & Biotechnology* 161 (1): 523-536. Springer. JIF 1.893. Citations 159.
20. 2010. Ryan W. Hunt, Senthil Chinnasamy, Ashish Bhatnagar, K.C. Das. Effect of biochemical stimulants on biomass productivity and metabolite content of the microalga, *Chlorella sorokiniana*. *Applied Biochemistry & Biotechnology* 162:2400-2414. Springer. JIF 1.893. Citations 44.
21. 2011. Monica Bhatnagar, Ashish Bhatnagar, Senthil Chinnasamy & K.C. Das. Curbing eutrophication by growing mixotrophic algae for biofuel feedstocks. *Algae Biofuels*. Subodh Bhatnagar (Ed). Studium Press, LLC, Houston, USA. Citation 1.
22. 2011. Ashish Bhatnagar, Senthil Chinnasamy, Manjinder Singh, K.C. Das. Renewable biomass production by mixotrophic algae in the presence of various carbon sources and wastewaters. *Applied Energy* 88 (11): 3632-3635. Elsevier. JIF 4.781. Citations 221.
23. 2011. Viswanathan T., Mani S., Das KC, Chinnasamy S and Bhatnagar Ashish. Drying characteristics of a microalgae consortium developed for biofuels production. *Transactions of American Society of Agricultural and Biological Engineers* 54 (6), pp. 2245-2252. ASABE, USA. Citation 8
24. 2012. T Viswanathan, S Mani, KC Das, S Chinnasamy, A Bhatnagar, RK Singh, M Singh. Effect of cell rupturing methods on the drying characteristics and lipid compositions of microalgae. *Bioresource Technology*. 126: 131–136. JIF 4.750. Citations 15

Biosorption

25. 2001. Monica Bhatnagar, Ashish Bhatnagar & Sapna Jha. Interactive biosorption by microalgal biomass as a tool for fluoride removal. *Biotechnology Letters*. (JIF 1.853). 24 (13): 1079-1081. Kluwer Academic Pub, The Netherlands. Citations 37.
26. 2010. Rajneesh Prajapat, Ashish Bhatnagar, Rjarshi Kumar Gaur, Vivek Bajpai. Fluoride Removal from water by Sorbing on Plant and Fungal Biomass. *International Journal of Biological Technology* 1(1):43-46. Citations 6
27. 2010. Monica Bhatnagar, Ashish Bhatnagar. Assessing algal potential to remove fluoride by biosorption In: *Protocols on Algal and Cyanobacterial Research*. Bagchi SN, Kleiner D. and Mohanty P. (eds). Narosa International Pub., New Delhi.
28. 2013. H Chhipa, R Acharya, M Bhatnagar, A Bhatnagar. Determination of sorption potential of fermentation industry waste for fluoride removal. *International Journal of Bioassays* 2 (3), 568-574. Citations 4

Stress Biology

29. 2000. Monica Bhatnagar & Ashish Bhatnagar. Algal and Cyanobacterial responses to fluoride. *Fluoride* (JIF 0.758) 33(2):55-85. Elsevier Pub. Citations 31.
30. 2004. Monica Bhatnagar & Ashish Bhatnagar. Physiology of *Anabaena khannae* and *Chlorococcum humicola* under fluoride stress. *Folia Microbiologica* (JIF 0.791). 49(3): 291-296. Citation 5
31. 2004. Monica Bhatnagar, Ashish Bhatnagar & S.K. Goyal. pH dependent fluoride toxicity in algae and cyanobacteria. *Indian Journal of Microbiology*. 44 (2):125-128. JIF 0.457

32. 2013. R Sharma, OP Chahar, M Bhatnagar, A Bhatnagar. Impact of osmotic stress and temperature on pigments and proteins of *Anabaena* strains. *Journal of Environmental Biology* 34 (5): 941-943. JIF 0.684 Citations 6
33. 2014. Ashish Bhatnagar, Monica Bhatnagar & Mukesh K. Garg. Solid Surfaces Alleviate Thermal Stress in Desert Microalgae. *International Journal on Algae*. 16(1):68-85.

Bioprospecting and Wound Management

34. 2001. Monica Bhatnagar & Ashish Bhatnagar. Biotechnological potential of desert algae. In: *Algal Biotechnology*. P.C. Trivedi (ed). Pointer Publ., Jaipur. pp.338-56. Citations 2
35. 2012. M Bhatnagar, S Pareek, J Ganguly, A Bhatnagar. Rheology and composition of a multi-utility exopolymer from a desert borne cyanobacterium *Anabaena variabilis*. *Journal of Applied Phycology* 24 (6), 1387-1394. JIF 2.326. Citations 5
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