

Geetika Batra

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K-9 Jangpura Extension
New Delhi 110014

- Skilled cereal carbohydrate specialist with R&D experience in genetic and biochemical alterations in cereal grain digestibility and its nutritional implications; with several international publications to credit.
 - Coauthored training modules and awareness manuals for Biothreat Mitigation Project at Defence Research & Development Organisation, which involved data collection, analysis based on pre-selected protocols to convert information into wisdom, content writing and presentation to experts for content validation.
 - R&D in industrial sanitisation product development like Ultraswachh technologies (www.ultraswachh.in) for pandemic resilience. Also developed procedures for implementation of Acceptance Test Protocols for commercialisation.
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Core Competencies

Scientific - Cereal grain chemistry, Molecular biology

Technical - Analytical biochemistry; Microscopy (light, scanning-electron, atomic-force); Electrophoresis (polyacrylamide, agarose); Capillary electrophoresis; High Performance Liquid Chromatography (Waters Millennium); Spectroscopy; Light diffraction particle analysis

Electronic - Microsoft Office processing; Image processing (Adobe Photoshop, Illustrator); Statistical softwares (SPSS Ver 17.0, Minitab 15)

Interpersonal - Teamwork, planning and organising, adaptability, decision making, responsible, independent worker, critical thinker, life long learner

Educational Qualifications

PhD Plant Sciences (2008 - 2014)

Department of Plant Sciences, University of Saskatchewan (U of S), Saskatoon SK Canada

Influence of genome specific GBSSI/ Waxy on starch composition, structure and in vitro enzymatic hydrolysis in wheat

MSc Biotechnology (2005 - 2007)

Department of Biotechnology, Kurukshetra University, Kurukshetra HR India

BSc (Hons.) Biotechnology (2002 - 2005)

Amity Institute of Biotechnology, Chaudhary Charan Singh University, Meerut UP India

Professional Experience

Research Scientist, ad hoc (Apr 2019 - present)

Gel Craft Healthcare Pvt. Ltd., Ghaziabad

- Project development through ideation to implementation
- Transformative R&D including Acceptance Test Procedures
- Content development from scientific to easily comprehensible language for the website

Research Associate (Jun 2018 - Feb 2019)

Department of CBRN Defence, Institute of Nuclear Medicine and Allied Sciences, New Delhi
Evaluation of detection, protection and decontamination technologies for selected bio-threat agents

- Development of training modules for dealing with bio-threat agents, useful for hospital staff, civil forces and incident sites management
- Developing business continuity plans for public/ private institutions amid a biological emergency
- Designing and conduct of emergency exercises to practically train people from different departments of an organisation

Visiting faculty, pro rata (Apr 2015 - Mar 2018)

Infotech Institute of Advanced Learning, Delhi

- Teaching graduate/ post-graduate students multiple fields of life sciences and related subjects

Junior Research Associate (Sep 2007 - Aug 2008)

Centre for Plant Biotechnology, HAU Campus, Hisar

Micropropagation of Lawsonia inermis and standardisation of agro-technological package for its cultivation in Haryana

- Developed a protocol for mass propagation of *L. inermis* using nodal segments and shoot tips isolated from field grown mature plants
- Tissue culture of several medicinal, ornamental and horticultural crops like sugarcane, aloe vera, banana, bamboo and stevia

Public & Community Contributions

Nav Abhigyan NGO, New Delhi, India, Science tutor, junior high. 2017 - 2018

India Students' Association, University of Saskatchewan, Treasurer. 2010 - 2011

Crop Science Seminar undergraduate level, University of Saskatchewan, Judge. Apr 2010

India Students' Association, University of Saskatchewan, Social Secretary. 2009 - 2010

Plant Sciences Graduate Students' Association, University of Saskatchewan, Vice President. 2009 - 2010

Publications & Presentations

Research publications/ Activities	Output
Research Articles (published)	4
Chapters in Books/ Proceedings	2
Books/ Manuals/ Modules	7
Popular Articles	8
Participation in Conferences	11

Research Articles

Ahuja, G., Jaiswal, S., Hucl, P., Chibbar, R. N. (2014). Wheat genome specific granule-bound starch synthase-I differentially influence grain starch synthesis. *Carbohydrate Polymers*, 114: 87-94. (Impact factor: 4.330)

Ahuja, G., Jaiswal, S., Hucl, P., Chibbar, R. N. (2014). Differences in Starch Granule Composition and Structure influence In Vitro Enzymatic Hydrolysis of Grain Meal and Extracted Starch in Two Classes of Canadian Wheat (*Triticum aestivum*). *Cereal Chemistry*, 91: 233-239. (Impact factor: 1.059)

Jaiswal, S., Baga, M., **Ahuja, G.**, Rossanagel, B. G., Chibbar, R. N. (2014). Development of barley (*Hordeum vulgare* L.) lines with altered starch granule distribution. *Journal of Agricultural and Food Chemistry*, 62: 2289-2296. (Impact factor: 3.107)

Ahuja, G., Jaiswal, S., Hucl, P., Chibbar, R. N. (2013). Genome specific GBSSI influences starch biochemical and functional characteristics in near-isogenic wheat (*Triticum aestivum* L.) lines. *Journal of Agricultural and Food Chemistry*, 61: 12129-12138. (Impact factor: 3.107)

Book Chapters

Ahuja, G., Jaiswal, S. (2020). High Amylose Cereals: Starch Structure, Biosynthesis and Commercial Applications. In: Amylose: Properties, Structure and Functions (ISBN: 978-1-53616-932-4), Chapter 3 (pp. 95-137). H. Dutta and S. K. Paul (eds.). Nova Science Publishers.

Ahuja, G., Jaiswal, S., Chibbar, R. N. (2013). Starch biosynthesis in relation to Resistant Starch. In: Resistant Starch: Sources, Applications and Health Benefits (ISBN: 978-1-118-52875-4), Chapter 1 (pp. 1-22). Y-C. She and C. C. Maningat (eds.). IFT Press Wiley Blackwell.

Books/ Manuals/ Modules

Chawla, R.,,, **Batra, G. A.** (2019). Bio-threat Mitigation by Medical Professionals (Hospital Level), Chawla *et al* (eds). A publication of Division of CBRN Defence, Institute of Nuclear Medicine & Allied Sciences, DRDO, Delhi, ISBN: 978-81-935041-6-1.

Chawla, R.,,, **Ahuja, G.** (2019). Bio-threat Mitigation by Paramedical & Allied Staff (Hospital Level), Chawla *et al* (eds). A publication of Division of CBRN Defence, Institute of Nuclear Medicine & Allied Sciences, DRDO, Delhi, ISBN: 978-81-935041-8-5.

Chawla, R.,,, **Ahuja, G.** (2019). Mitigation of Biological Emergencies at Incident Site, Chawla *et al* (eds). A publication of Division of CBRN Defence, Institute of Nuclear Medicine & Allied Sciences, DRDO, Delhi, ISBN: 978-81-940712-1-1.

Chawla, R.,,, **Ahuja, G.** (2019). Bio-threat Mitigation by Civil Forces & Support Services, Chawla *et al* (eds). A publication of Division of CBRN Defence, Institute of Nuclear Medicine & Allied Sciences, DRDO, Delhi, ISBN: 978-81-940712-2-8.

Chawla, R.,,, **Ahuja, G.** (2019). Business Continuity & Long Term Management, Chawla *et al* (eds). A publication of Division of CBRN Defence, Institute of Nuclear Medicine & Allied Sciences, DRDO, Delhi, ISBN: 978-81-940712-3-5.

Chawla, R.,,, **Ahuja, G.** (2019). Emergency Exercises: Design & Conduct, Chawla *et al* (eds). A publication of Division of CBRN Defence, Institute of Nuclear Medicine & Allied Sciences, DRDO, Delhi, ISBN: 978-81-940712-5-9.

Chawla, R.,,, **Ahuja, G.** (2019). Decision Aid Training Exercise - Biological Attack Scenarios, Chawla *et al* (eds). A publication of Division of CBRN Defence, Institute of Nuclear Medicine & Allied Sciences, DRDO, Delhi, ISBN: 978-81-940712-4-2.

Popular Articles

Ahuja G. Precaution is better than Cure: Ultraswachh Safe Ecosystems. www.ultraswachh.in (2021).

Ahuja G. Pandemics is new Bio-economy Pusher: Plan for 100 years ahead. www.ultrawachh.in (2021).

Ahuja G. Microbial Free Indoor Air: Yesterday Today & Future Challenge. www.ultraswachh.in (2021).

Ahuja G. Alcohol based Sanitizers and Fire Safety: Impending Disasters. www.ultraswachh.in (2021).

Ahuja G. Is Hybrid Immunity the finale for COVID-19. *InnoHealth* (2021) 6(6): 35-37.

Ahuja G. Pandemic Resilient Ecosystem for Business Continuity. InnoHealth (2021) 6(1): 49-51.

Ahuja G. India's navigation towards automated healthcare. InnoHealth (2020) 5(4): 24-26.

Batra G. A. Can Millets be the answer to India's Nutritional Problems? InnoHealth (2019) 4(2): 46-48.

Participation in Conferences

"Physicochemical and structural properties of endosperm starch during wheat grain development". 20th Annual Life & Health Sciences Research Day, University of Saskatchewan, Canada, March 15, 2013.

"Canadian Western Red Spring (CWRS) and Canada Prairie Spring Red (CPSR) Wheats - A Comparison of Biochemical and Functional Properties". 19th Annual Life & Health Sciences Research Day, University of Saskatchewan, Canada, March 9, 2012.

"Comparison of biochemical and functional properties of Canadian Western Red Spring (CWRS) and Canada Prairie Spring Red (CPSR) wheats". 1st ICC India Grains Conference, New Delhi, India, January 16-18, 2012.

"Effect of GBSSI from A, B, D genomes of wheat on starch structure, composition and function". AACC International Annual Meeting, Palm Springs CA, USA, October 16-19, 2011.

"Influence of wheat genome specific GBSSI on starch composition, structure and in vitro enzymatic hydrolysis". 27th Annual Plant Sciences Graduate Students Symposium, University of Saskatchewan, Canada, March 25-26, 2011.

"Influence of wheat starch structure on starch in vitro enzymatic hydrolysis". 18th Annual Life & Health Sciences Research Day, University of Saskatchewan, Canada, March 11, 2011.

"Influence of wheat starch structure on starch hydrolysis". AACC International Annual Meeting, Savannah GA, USA, October 24-27, 2010.

"Study of Granule Bound Starch Synthase - I (GBSSI) in near isogenic lines of wheat and its effect on grain starch composition, structure and function". 17th Annual Life & Health Sciences Research Day, University of Saskatchewan, Canada, March 12, 2010.

"Differential effect of GBSSI from A, B and D genomes of wheat on grain starch composition, structure and function". Soils and Crops Conference IV, University of Saskatchewan, Canada, February 2010.

"Study of amylose and amylopectin structure in relation to starch granule morphology in wheat grain". 16th Annual Life & Health Sciences Research Day, University of Saskatchewan, Canada, March 13, 2009.

"Micropropagation of Lawsonia inermis - A Medicinal Plant". National Seminar: Physiological and Biotechnological Approaches to Improve Plant Productivity, Hisar, India, March 15-17, 2008.

Awards

AACC International Travel Awards, American Association of Cereal Chemistry Annual Meeting, Oct 2011 and Oct 2010

Talk, first place, 27th Annual Plant Sciences Graduate Students Symposium, University of Saskatchewan, Canada, Mar 2011

Poster, second place, 18th Annual Life & Health Science Conference, University of Saskatchewan, Canada, Mar 2011

Scholarships

Herb R. and Marian H. Clark Scholarship, College of Graduate Studies & Research, University of Saskatchewan, Jun 2011

Paulden F. and Doratheia I. Knowles Post Graduate Scholarship in Crop Science, University of Saskatchewan, Nov 2009

Devolved Scholarship, Department of Plant Sciences, University of Saskatchewan, 2009-2012

Training Courses

Equipment level training on High Performance Anion Exchange Chromatography organized by DIONEX; High Performance Liquid Chromatography- Trouble shooting by Waters held at University of Saskatchewan, Canada, 2012.

Equipment level training on Capillary Electrophoresis organized by Beckman and Coulter held at University of Saskatchewan, Canada, 2010.

Laboratory level operational training courses on Laboratory Safety, Bio-Safety, Radiation Safety at University of Saskatchewan, Canada, 2008.

Memberships & Affiliations

K. K. Nanda Foundation for Advancement in Plant Sciences, India, Life member, since 2008.

American Association of Cereal Chemistry, USA, Student member, 2010-2012.

References

1. Prof. Ravindra N. Chibbar

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