ICAR – INDIAN INSTITUTE of SUGARCANE RESEARCH LUCKNOW 226002, UTTAR PRADESH

Name- Dr. Pushpa Singh						
Designation	Principal Scientist	t (Organic C	(hemistry) &	z HOD (A)		
Division/Section	Plant Physiology	Plant Physiology and Biochemistry				
Research Area	 Sugarcane Juice Preservation – Retention of Juice Properties Sugarcane Yield Barriers through Physio-Biochemical Approaches Improved physiological efficiency, yield and sucrose contents. Sugarcane Ratoon Productivity Through PGRs and soil amendments Sugarcane Lignocelluloses Conversion to bioethanol -Upscaling Ethanol Production 					
Patent Details	1. <i>Ethrel</i> primed sugarcane top as planting material for reducing can cultivation cost and improving cane and sugar productivity'' (Pate Filed-(Co Author) (2020)					
Technologies Developed	 Filed-(Co Author) (2020) PGR technology for Enhancing cane and sugar yield (2022); Enhancing sugarcane yield through PGR technology - Six-fold Biligual folder published on Technology Developed (2022) Improved bud sprouting in winter-initiated sugarcane ratoon - (2008) Sugarcane packaging with retained physio-biochemical strength- Process developed (2022) An irrigation scheduling Mobile app- <i>Ikshu Kedar</i> - Sixfold Bilingual folder published as Co-author (2022); An irrigation scheduling Mobile app- <i>Ikshu Kedar</i> - Sixfold Bilingual folder published as Co-author (2022); An irrigation scheduling Mobile app- <i>Ikshu Kedar</i> - Sixfold Biligual (Co-PI) (2022) Developed biological pretreatment process for conversion of sugarcane trash into fermentable sugars for bio-ethanol production (2008). Developed ready-to-use bio clarificant for cane juice clarification for high quality Jaggery preparation with longer shelf life's (2003) Post-harvest sucrose losses in sugarcane management Six fold Biligual (2017) 					
S Externally funded Research Projects		ΡΙ/Cο ΡΙ/	Duration	Funding Agency		
No	xistar (h i i Ujetio	Duration	Duration	r unung Agency		
1. A.P. Cess Fund Project: Development of pretreatment and hydrolysis process for conversion of sugarcane biomass to ethanol (Pushpa Singh , Archna Suman and A.K. Shrivastava)		PI	2005- 2008	(AP Cess) ICAR		

Personal Information

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2.	Carbon sequestration potential of			DST. New Delhi GOI			
	sugarcane-based cropping system for		2012 -	, , , , , , , , , , , , , , , , , , , ,			
	sustaining crop health and crop	Co PI	2015				
	productivity in Uttar Pradesh (SK Shukla,						
	TK Srivastava, Pushpa Singh , RK Rai, PK						
	Bajpai)						
3.	Development of Plant Growth Promoting	CoPI	2009-	DBT New Delhi			
	Microbial Consortium for Rice-Wheat-		2013				
	Sugarcane Cropping System						
4.	ICAR Agri-consortia research platform on		2015-	ICAR New Delhi			
	water (Rajendra Gupta, T.K. Srivastava,		2019				
	Pushpa Singh, S.R. Singh, R.R. Verma						
	and S.N. Singh (Rs 35 Lacs)						
5.	Establishment of soil testing laboratory for	Co PI	2018-	Rastriya Krishi Vikas			
	soil health management and need based		2020	Yojana (RKVY), Govt			
	fertilizer recommendations to the growing			of Uttar Pradesh,			
	crops aiming to enhanced productivity and			Lucknow			
	profitability at farmers' fields in Lucknow						
	(IN Sinch Duchne Sinch et al 2018)						
	(SN Singir, Fusipa Singir et al 2018.)						
6	DST: WOS B: Modified	Co	2019	DST New Delhi			
0.	Atmosphere Packaging of	Mentor	2017 -				
	Sugarcane Juice in Closed	Wientor	2025				
	System -Dr Privanka Singh						
	Project Scientist (Agriculture						
	and allied science, Pushpa Singh						
7.	Contractual Research Projects: Effect	Co PI	2014-	(Cytozyme			
	of Cytozyme (USA) Products Seed +		2016	Laboratories, Inc. 134			
	Extra, Soil +, CytoNutri Zinc,			South 700 West, Salt			
	CytoNutriBoron and CytoNutriPotassium,			Lake City, Utah, USA			
and CROP XL on growth, yield and quality							
	of sugarcane in subtropical India. (AK						
	Shrivastava, Pushpa Singh , SP Shukla, C						
	Prajapati)						
Pul	Publications (Last Five years)						
1	Priyanka Singh, Anam, Saachi Chaurasia, D	ilip Kumar, A	AK Singh, P	Pushpa Singh* (2022),			
	Sugarcane blanching at specific temperature and time combination preserves juice physio-						
	biochemical, microbial and sensory attributes, International Journal of Food Science and						
	Example 2022 , <u>https://doi.org/10.1111/1j1s.16205</u> <u>NAAS</u>						
2	Kaung 9./1 2 Srivestave TK Singh Dushne* & Verme D.D. (2022) Weather verichility travils in						
4	2 Silvasiava, I.K., Siligii, rusiipa [*] . & venna, K.K. (2022). Weather variability trends in Gangetic plains of Uttar Predesh India: influence on gropping systems and adaptation strategies						
	Environment, Development and Sustainability. 24(3) 3588-3618 March NAAS Rating.						
9.22							
3	3 Srivastava, T.K., Singh, Pushpa*. & Verma, R.R. (2022). Weather variability trends in						
	Gangetic plains of Uttar Pradesh, India: influence on cropping systems and adaptation strategies.						
	Environment, Development and Sustainability, 24(3), 3588-3618. March. NAAS Rating						
	9.22						
4	4 Ram Ratan Verma, Tapendra Kumar Srivastava, Pushpa Singh*, B. L. Manjunath, Anil Kumar						
	(2021). Spatial mapping of soil properties in Konkan region of India experiencing anthropogenic						
	onslaught, PLOS ONE; 16(2): e0247177. NAAS Rating 9.24						

- 5 N Tripathi, Anam, **Singh Pushpa***, Rai RK (**2020**), Exogenous application of Ethrel and GA₃ on spring planted sugarcane elongates internode. **Pratibha Srijan** (1) 53-71. Annual Journal of AMC, Gaya, Bihar
- 6 Verma, Ram Ratan & Srivastava, Tapendra & Singh, Pushpa. (2019). Climate change impacts on rainfall and temperature in sugarcane growing Upper Gangetic Plains of India. Theoretical and Applied Climatology. 135. 10.1007/s00704-018-2378-8. NAAS Rating 9.18
- 7 Singh, Pushpa*, Tripathi, N., Joshi, D., Pathak, A.D. and Sethi, A., (2018), Trichoderma elicitors create a potential chemical barrier through induced systemic resistance against *Colletotrichum falcatum* and minimize sucrose losses in sugarcane. Journal of Plant Pathology, (2018) 100(2), pp.151-162. DOI: <u>https://doi.org/10.1007/s42161-018-0034-x</u>, NAAS Rating 7.73
- 8 Verma, Ram Ratan & Manjunath, Begur & Singh, N. & Kumar, Anil & Asolkar, Trupti & Chavan, Virendra & Srivastava, Tapendra & Singh, Pushpa. (2018). Soil mapping and delineation of management zones in the Western Ghats of coastal India. Land Degradation & Development. 29. 10.1002/ldr.3183. NAAS Rating 10.98
- 9 T K Srivastava, K P Singh, Pushpa Singh, Archna Suman, S R Singh, R R Verma, V K Singh and R K Singh. 2018. Effect of bio-manures on soil quality, cane productivity and soil carbon sequestration under long-term sugarcane (Saccharum officinarum) plant -ratoon system in Indian sub-tropics. Indian Journal of Agricultural Sciences 88 (11): 1696–1703. NAAS Rating 6.21
- 10 Singh, S. R., Kundu, D. K., Dey, P., Pushpa Singh, & Mahapatra, B. S. (2018). Effect of balanced fertilizers on soil quality and lentil yield in Gangetic alluvial soils of India. Journal of Agricultural Science, Cambridge 156(02), 225–240. NAAS Rating 7.48
- 11 Rama Kant Rai, Nidhi Tripathi, D. Gautam, and Pushpa Singh*, (2017); Exogenous application of Ethrel and Gibberellic acid stimulates physiological growth of late planted sugarcane with short growth period in sub-tropical India. J Plant Growth Regul (2017) 36:472-486 DOI 10.1007/s00344-016-9655-5, NAAS Rating: 10.17
- 12 Joshi, Deeksha & Gupta, Jaya & Mishra, Ayushi & Upadhyay, Monika & Holkar, Somnath & Singh, Pushpa. (2018). Distribution, Composition and Bioactivity of Endophytic Trichoderma spp. Associated with Sugarcane. Proceedings of the National Academy of Sciences, India Section B: Biological Sciences. 89. 10.1007/s40011-018-1036-3.

Books Published

- 1. SN Singh, TK Srivastava, AD Pathak, **Pushpa Singh** (2022). *Sugarcane Crop Management Practices in India*, DKMA, ICAR, New Delhi, pp. 466, ISBN No. 978-81-7164-242-7
- 2. Pushpa Singh, Anam, TK Srivastava & RR Verma, (2022), *Nanoparticles applications in Agriculture*, pp 156, ISBN No. 978-93-91418-22-9, Scientific Publishers, Jodhpur, India
- RK Rai, Pushpa Singh, S. Solomon, AK Shrivastava (2014). Augmenting Sugar Productivity: Physio-biochemical Interventions, ICAR-IISR, Lucknow, UP, pp. 107, ISBN No. 978-93-5493-858-0
- 4. Shrivastava, A.K., S. Solomon, A.D. Pathak, S. Srivastava, Sanjeev Kumar, Pushpa Singh (2013). Smarika, Rastriya Sanghosti on "Bhaart ke uposhan jalvayu wale kshetro mein ganna avam chini udgyog ke vikas ke liye bhariya ganna anusandhan ki pahal", at Motipur, Muzaffarpur, Bihar, Nov 29-30, 2013, Indian Institute of Sugarcane Research, Lucknow, pp. 192 (in Hindi).
- AK Shrivastava, S Solomon, AD Pathak, Pushpa Singh, S Srivastava, SN Singh, M Swapna, (2013), A Journey of pride (1988-2013) IISR, Regional centre, Motipur Bihar, pp 64. Amaresh
- 6. Chandra, R. Jain, R. Banerjee, **Pushpa Singh** and S. Solomon, (2012), *A Compendium* on *Post-harvest Management of Sugarcane and value addition*, IISR Lucknow, pp 1-90.
- Chandra, R. Banerjee, R. Jain, R.K. Rai, Pushpa. Singh, A.K. Shrivastava, Priyanka Singh and S. Solomon, (2012), Six decades of research on physiology and post-harvest management of sugarcane, Souvenir published, IISR Institute Foundation Day.
- 8. Srivastava AK, Solomon S, Banerjee R, **Pushpa Singh** (2004). Physiological and molecular approaches for sugarcane productivity, ICAR-IISR, Lucknow.

Books Chapters Published

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- Pushpa Singh (2022) Uttar Pradesh Chapter (pp 5-51) In Sugarcane Crop Management Practices in India. In "Sugarcane Crop Management Practices in India", (Eds), SN Singh, TK Srivastava, AD Pathak and Pushpa Singh, 2022, ISBN No. 978-81-7164-242-7, DKMA, ICAR, New Delhi, 5-51. Pages:466
- Pushpa Singh (2022) Nanoparticles-History and Perspectives (pp 1-18) In "Nanoparticles applications in Agriculture", (Eds), Pushpa Singh, Anam, TK Srivastava, RR Verma, 2022, ISBN No. 978-93-91418-22-9, Scientific Publishers, Jodhpur, India, Pages:156
- 4. S R Singh, Deeksha Joshi, Nidhi Tripathi, Pushpa Singh* and Tapendra Kumar Srivastava. (2017). Plant growth promoting bacteria: An emerging tool for sustainable crop production under sale stress. pp 101-132. In. Bioremediation of salt affected soils: An Indian Perspective (Eds. Sanjay Arora, Atul K Singh, Y P Singh). Springer International. 313 p. ISBN 978-3-319-48256-9
- 5. S Solomon & Pushpa Singh* (2015) Sugarcane as an Alternative Source of Sustainable Energy (pp 59-85) In "Sustainable Biofuels-An Ecological Assessment of the Future Energy" (Eds) Ajay Kumar Bharadwaj, Terenzio Zenone and Jiquan Chen, ISBN No. 978-7-04-041121-8, Higher Education Press, Beijing, China, pp 59-85
- 6. **Pushpa Singh** (2004), Allelopathy and the sugarcane cropping system, In Srivastava AK, Soloman S, Banerjee R, Pushpa Singh Eds. Physiological and molecular approaches for sugarcane productivity, ICAR-IISR, Lucknow
- Srivastava AK, Solomon S, Banerjee, R , Rai, RK, Pushpa Singh (2004), Compensatory ability in sugarcane, In. Physiological and molecular approaches for sugarcane productivity, SB Singh, GP Rao, S Solomon and P Gopalsundram, Stadium Press, LLC, USA, pp 543-556.
- 8. **Pushpa Singh** (2004), Juice analysis and Fiber estimation, Cane Management and development in sugar mill reserved zones, Eds RL Yadav, DV Yadav, RP Verma, IISR, Lucknow, pp 277-281
- Pushpa Singh(2008), Chemistry of sugarcane juice and its thermal decomposition during jaggery manufacture, Processing handling and storage of sugarcane jaggery, Eds Jaswant Singh & RD Singh, IISR, Lucknow, pp 36-39
- 10. Pushpa Singh (2008), Quality analysis of liquid jaggery, Processing handling and storage of sugarcane jaggery, Eds Jaswant Singh & RD Singh, IISR, Lucknow, pp 86-87
- 11. **Pushpa Singh (2011)**, Waste utilization Sugar and Jaggery Industrial waste Management In Food Processing Waste Management, Eds, Joshi VK and Sharma SK, New India Publishing Agency, Pitampura New Delhi, **Pp 229-255**
- 12. Srivastava AK, **Singh Pushpa**, Srivastava MK (2004), Sustaining sugarcane Production under abiotic stress, In Sugarcane Production Management and agro industrial imperatives Eds In Solomon S, Grewal, SS, Yang Rui Li, GP Rao, Int Book Distributing Co, India, pp 285-305.