PROFILE OF S. K. HOLKAR

1. Name of the Scientist : S. K. Holkar

2. Personal Biodata

a) Position/Designation : Scientist

b) Contact Details

(i) ICAR Email ID : Kadappa.holkar@icar.gov.in

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c) Joining Date in

(i) ICAR : 01.01.2013

(ii) IISR : 11.04.2013

d) Discipline and Specialization : Plant Pathology (Plant Virology)

e) Training/Advance Exposure in the Area of Work Done

itle of the Course	**Organizing Institution**	**Duration**
ELISA and PCR Based diagnostics for Virus Indexing for DBT-Accredited Test Laboratories	Referral Centre for Virus Indexing of Tissue Culture Raised Plants, Division of Plant Pathology, Indian Agricultural Research Institute, New Delhi	Five days (July 12-July 16, 2015)
Genomics of Plant Virus for Diagnosis and Utilisation as Gene Expression Tool	Division of Plant Pathology, Indian Agricultural Research Institute, New Delhi-110012	ICAR sponsored 21 days CAFT15 Oct 2014 to 06 Nov 2014
Novel Genomic Tools and Breeding Approaches in Improvement of Sugar Crops	Division of Crop Improvement, Indian Institute of Sugarcane Research, Lucknow-226002	ICAR sponsored 21 days winter school 09 Sept 2014 to 29 Sept 2014
97th Foundation Course for Agricultural Research Scientist	NAARM, Hyderabad	January 01-August.12, 2013

f) Contribution in Scientific Advancements

I have been working on transgenic development in watermelon and detection (RT-PCR and ELISA), diagnosis and screening of the tospoviruses particularly *Groundnut bud necrosis virus* (GBNV) and Watermelon bud necrosis virus (WBNV), and after joining Agricultural Research Service studying plant viruses associated with sugarcane, *viz.*, Sugarcane mosaic virus (SCMV), Sugarcane yellow leaf virus (SYLV) and Phytoplasma
Detection of Groundnut bud necrosis virus (GBNV)
First report of the Groundnut bud necrosis virus in tomato in Bangladesh (Published in Plant Disease-2011).
Development of mechanical Inoculation protocol of WBNV in watermelon
An efficient and rapid inoculation protocol for inoculation of WBNV in watermelon has been standardized to screen the genotypes resistant to WBNV under field and glass house conditions.
Genetic transformation in watermelon
Efficient regeneration and *Agrobacterium* mediated transformation protocols were been developed in watermelon and transgene integration and expression was confirmed using RT-PCR and ELISA.
Development of Duplex RT-PCR for the detection of the tospoviruses
An efficient duplex RT- PCR were staderdized for the detection of the tospoviruses in cucurbitaceous and asteraceous hosts in Indian Sub-continent and reported the association of tospoviruses for the first time in India.
Screening of the watermelon genotypes for WBNV resistance under field conditions
Screening of the 50 genotypes of watermelon for resistance to WBNV under field conditions by developing the disease rating scale based on the symptoms observed in fields
Development of RT-PCR for the detection and Screening SCMV
Detection of the potyviruses (Sugarcane mosaic virus) were been standardized from the commercial cultivars of Sugarcane

3. Future Planning of Research

- To work on the *Sugarcane yellow leaf virus* (SCYLV) and *Sugarcane yellow leaf phytoplasma* (SCYLP) infecting sugarcane.

4. Publications (Best Five):

Holkar, S. K. and Ram Chandra. (2016). Comparative evaluation of five *Pleurotus* species for their growth behaviour and yield performance using wheat straw as a substrate. **Journal of Environmental Biology**, Volume 37 (1) 7-12. [Triveni Enterprises, NAAS: 6.56; IF: 0.56].

Jain, R.K, Mandal B., Pappu H.R and **Holkar S.K.** (2015). A new species proposal for inclusion of Watermelon bud necrosis virus (WBNV) in the

genus *Tospovirus* as a distinct virus species isolated from *Citrullus lanatus* and other cucurbitaceous hosts. Modules attached. Approved by the **International Committee on Taxonomy of Viruses** (ICTV), (www.ictv.talkonline.com).

Kumar S, Tewari A.K, **Holkar S.K,**Dattamajumder S.K. and Rao G.P. (2014) Characterization of 16SrI-B Group Phytoplasma Associated with Sugarcane Leaf Yellows Disease in India. **Sugar Tech**. 17:156-161 [Springer, IF 0.576, NAAS 6.58].

Akhter MS, **Holkar SK,** Akanda AM, Mandal B and Jain RK. (2012). First Report of *Groundnut bud necrosis virus* in Tomato in Bangladesh. **Plant Disease.** 96: 6 pp. 917 [Springer, IF 2.74, NAAS 7.7].

Ram RC and **Holkar SK**. (2009). Bio-efficacy of the casing materials for growth stages, physical parameters and yield of *Agaricus bisporus* (Lange). Imbach. **Mushroom Research-An Internatinal journal**18(2): 65-68 (NAAS 3.4).

Other Publications:

Book Chapters

Holkar, S. K., Pratibha Kaushal and Kumar S. (2016) Host preference by evolving insect vectors in relation to infection of plant viruses ***In.*** The Phytopathogen Evolution and Adaptation. (Eds. Ghatak A. and Ansar M.) Publisher: **Apple Academic Press**, USA (*In press*).

Chattopadhyay A, **Holkar S.K.** and Meena S.C. 2014. Recent molecular breeding and biotechnological approaches in mushroom research *In***Microbial Biodiversity in Sustainable Agriculture**. (Ed. Ram Chandra) Daya Publishing House, New Delhi. pp: 323-343.

Research Abstracts

Holkar, S. K., Mandal, B. and Jain, R. K. (2016). Diagnosis and identification of resistant source for bud necrosis disease caused by *Watermelon bud necrosis virus* in India. ***In.***proceedings of Indian Phytopathological Society (IPS) – 6th International Conference on Plant, Pathogens and People-Challenges in Plant Pathology to Benefit Humankind from February 23-27, 2016, New Delhi, India (**Selected from mid-eastern region for final contest forProf. M.J. Narasimhan Academic Merit Medal**) p. 206-207.

Holkar, S. K., Mandal, B. and Jain, R. K. (2016). Optimization and validation of mechanical inoculation of Watermelon bud necrosis virus to watermelon. ***In.***proceedings of Indian Phytopathological Society (IPS) – 6th International Conference on Plant, Pathogens and People-

Challenges in Plant Pathology to Benefit Humankind from February 23-27, 2016, New Delhi, India p.378.

Holkar, S. K., Mandal, B. and Jain, R. K. (2015). Diagnosis and identification of resistant source for bud necrosis disease caused by *Watermelon bud necrosis virus* in India. ***In.***proceedings of Indian Phytopathological Society (IPS) - National Symposium-cum-Mid Eastern Zonal Meeting on Impact of climate change on plant-microbe interactions and its implicationsheld from 18-19 December 2015 at BHU, Varanasi (U.P.) India. (**ParticipatedProf. M.J. Narasimhan Academic Merit Medal Contest from Mid-Eastern Region**). p.18.

Holkar, S. K., Mandal, B. and Jain, R. K. (2015). Development and validation of marker free constructs based on nucleocapsid and non-structural protein genes of *Watermelon bud necrosis virus* (WBNV). ***In:*** proceedings of Indian Virological Society (IVS) - One day Symposium on Challenges in Plant Virology and Our Preparedness held on December 5, 2015 at Plant Virology Auditorium, Division of Plant Pathology, IARI, New Delhi. p. 74.

Holkar, S. K., Lal R. J., Kumar S., Singh, J., Pandey, D. K., Singh P. K. and Sharma A. K. Occurrence of yellow leaf disease (YLD) on sugarcane genotypes for North-West region of Sub-tropical India. ***In:*** proceedings of Indian Phytopathological Society (IPS) - National Symposium-cum-Mid Eastern Zonal Meeting on Impact of climate change on plant-microbe interactions and its implicationsheld from 18-19 December 2015 at BHU, Varanasi (U.P.) India. p.57.

Holkar SK, Mandal B, and Jain RK. 2014. Reaction of the watermelon genotypes for Watermelon bud necrosis virus under field and glass house conditions. In Proc. National Conference on Recent Trends in Virology Researchin the Omics Era (VIROCON), Dec. 18-20), TNAU, Coimbatore, p. 169

Holkar SK, Gaikwad KS, Meena MR, Parameswari B, Rao GP. and Jain RK. (2014). Detection and Partial Molecular Characterization of *Sugarcane mosaic virus* in sugarcane genotypes. *In proc.International Conclave on Sugar crops.* IISR, Lucknow, p. 122

Holkar SK, Kumar R, Maheshwari Y, Katiyar A, Jain RK. and Mandal B. (2013). Duplex RT-PCR for specific detection of *Watermelon bud necrosis virus* and *Groundnut bud necrosis virus*, the two closely related tospoviruses in India. *In. proc.* International Conference of Indian Virological society (IVS) on *Asia-Pacific Congress of Virology*

(VIROCON) held from 17-20th December, 2013 at Amity University, Sec-125, Noida (New Delhi, NCR), p. 74.

Holkar SK, Mandal B. and Jain RK. (2012). New Ornamental and Cucurbitaceous Hosts of *Groundnut bud necrosis virus* in India. In.XXIth National conference of Indian Virological society (IVS) on "Immunobiology and management of viral diseases in 21st Century" held from 8-10 November, 2012 at Indian Veterinary Reseach Institute (IVRI) Mukteswar, Nainital 263138, Uttarakhand Indian J. Virol. 24 (1): 99-149. (ISSN 0970-2822 Springer Publisher, IF O.9, NAAS 7.4).

Books/Proceedings/Compendium/Policy Paper

Solomon S, Jain R, Chandra A, Shukla SK, Lal RJ, Venugopalan VK, Nithya K, **Holkar SK,** Singh MR, Prakash B, and Asfaque M. (2014). Sugarcane: A voyage from sett to sweetners. IISR, Lucknow, p. 111.

Technical/popular article:

*Ganne Mein NasiKitonEvamBimarionKaSamekitPrabandhan*published by IISR, Lucknow on March 5, 2016.