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RESEARCH AND OTHER SCHOLARLY ACTIVITIES

Listed in reverse sequential and chronological order.

A. Invention Disclosures (these are inventions or new technology developments with potential to commercialize and were submitted to WSU's Office of Commercialization).

* Senior author or Project Leader

- *4. Pappu, H.R., K. Druffel, and K. Pike. Materials and methods for broad spectrum detection of Barley yellow dwarf serotypes infecting wheat, barley and corn. WSU Office of Commercialization. Licensing options are being negotiated with commercial diagnostic companies.
- *3. Pappu, H.R. and K. Druffel. A genus-wide molecular test for broad spectrum detection of members of the genus *Caulimovirus*. WSU Office of Commercialization. Licensing options are being negotiated with commercial diagnostic companies.
- *2. Pappu, H.R., K. Druffel and L.J. du Toit. An ELISA-based diagnostic assay for *Iris yellow spot virus* infection. Methods and materials for rapid, highly sensitive, and specific detection of *Iris yellow spot virus*. WSU Office of Commercialization. Licensing options are being negotiated with a commercial diagnostic company in Europe.
- *1. Pappu, H.R., S.D. Wyatt, and K. Druffel. A Real Time Molecular Assay for the Detection of *Dahlia mosaic virus* (DMV). Methods and materials for rapid, highly sensitive, and specific detection of the viral plant pathogen DMV. WSU Office of Commercialization. The technology was licensed to Agdia Inc., Elkhart, IN, USA

B. Publications

1. Review articles/Chapters in books

All were invited publications and peer-reviewed.

15. Chastagner, G., G. Hanks, M. Daughtrey, I. Yedidia, T. Miller, and H. Pappu. 2012. Sustainable Production and Integrated Management: Environmental Issues. Pp. 363-420. In: Kamenetsky, R., and H. Okubo (Eds), *Ornamental Geophytes: From Basic Science to Sustainable Horticultural Production*. Taylor and Francis. 553 pp.
14. Pappu, H.R. 2015. Thrips-transmitted *Iris yellow spot virus* – A threat to onion sustainability. *Agricultural Research Journal* 52: 10-12
13. Bag, S., and H.R. Pappu. 2015. *Iris yellow spot virus*: A distinct species in the genus *Tospovirus*, family *Bunyaviridae*. International Committee for Taxonomy of Viruses. In press.
12. Jain, R.K., B. Mandal, H R Pappu and S.K. Holkar. 2015. *Watermelon bud necrosis virus*: A new species in the genus *Tospovirus* isolated from *Citrullus lanatus* and other cucurbitaceous hosts. International Committee for Taxonomy of Viruses. In press.
11. Pappu, H.R. 2013. Viruses. In: *Onion Health Management & Production*. Onion IPMpipe. Edited by Howard Schwartz. Colorado State University. 98pp.
10. Mandal, B., R. K. Jain, M. Krishnareddy, N.K. Krishna Kumar, K.S. Ravi, and H. R. Pappu. 2012. Emerging Problems of Tospoviruses (*Bunyaviridae*) and their Management in the Indian Subcontinent. *Plant Disease* 96:468-479. *Top ten most downloaded articles from Plant Disease in 2012*.
9. Makkouk, K., H.R. Pappu and S.G. Kumari. 2012. Virus Diseases of Peas, Beans and Faba Bean in the Mediterranean Region. *Advances in Virus Research* 84:367-402.
8. Pappu, H.R., R.A.C. Jones, and R.K. Jain. 2009. Global status of tospovirus epidemics in diverse cropping systems: Successes gained and challenges ahead. *Virus Research* 141:219–236. *Most cited article on tospoviruses since 2009*.
7. Pappu, H.R. 2008. *Tomato spotted wilt virus (Bunyaviridae)*. In: *Encyclopedia of Virology*. 5 Vols. 3rd Edition. B.W.J. Mahy and M.H.V. Van Regenmortel, Editors. Oxford: Elsevier. pp. 133-138.
6. Pappu, H.R. 2004. Insect pollinated crops. Pp 35-48, In: *Proceeding of the Workshop on Confinement of genetically engineered crops during field testing*. USDA-APHIS, Biotechnology Regulatory Services, Riverdale, MD. September 13-14, 2004.
5. Bertrand, P.F., and H.R. Pappu. 2001. Pecan bunch. In: *Compendium of Nut Tree Diseases*. American Phytopathological Society Press, St. Paul, MN.

4. Pappu, H.R. 1999. Biosafety issues of virus-resistant transgenic plants. pp 51-64. In: *Biotechnology, Biosafety and Biodiversity: Scientific and Ethical Issues for Sustainable Development*. S. Shantharam and J.F. Montgomery (Eds.). Science Publishers, Inc. Keene, NH.
3. Culbreath, A.K., J. W. Todd, S.L. Brown, J.A. Baldwin, and H. R. Pappu. 1999. A genetic and cultural package for management of tomato spotted wilt virus in peanut. *Biological and Cultural Tests* 14:1-8.
2. Pappu, H.R. and C.L. Niblett. 1995. Application of recombinant DNA technology in plant protection: Molecular approaches to engineering virus resistance in crop plants. *World Journal of Microbiology and Biotechnology* 11:426-437.
1. Bar-Joseph, M., R.F. Lee, and H.R. Pappu. 1995. The Closteroviruses. Pp.65-85. In: *Pathogenesis and Host Specificity in Plant Diseases: Volume III: Viruses and Viroids* (R.P. Singh, U.S. Singh and K. Kohmoto eds.) Pergamon Press, Oxford, UK.

2. Refereed Journal Articles

Published or In Press. Listed in reverse sequential and chronological order. (#graduate student; %postdoctoral fellow/research associate).

187. Mitter, N., Y. Zhai, A.X. Bai, K. Chua, S. Eid, M. Constantin, R. Mitchell, and H.R. Pappu (2016). Evaluation and Identification of candidate genes for artificial microRNA-mediated resistance to *Tomato spotted wilt virus (Tospovirus: Bunyaviridae)*. *Virus Research* 211:151-158.
186. Srinivasan, R., M. Abney, A. Culbreath, R. Kemerait, S. Tubbs, S. Monfort, and H.R. Pappu (2017). Three decades of managing Tomato spotted wilt virus in peanut in southeastern United States. *Virus Research*: In press.
185. Ramesh, S.V%, S. Williams, N. Mitter and H.R. Pappu (2017). Transcriptome-wide Identification of host genes targeted by Tomato spotted wilt virus (TSWV)-derived small interfering RNAs in TSWV-resistant and susceptible tomato cultivars. *Virus Research* 238:13–23.
184. Vaira, A.M., L. Miozzi, M. Vallino, A. Carra, R. Lenzi, D. Salvi, J. Hammond and H.R. Pappu. (2017). Evidence of New Viruses Infecting Freesia Hybrids with Necrotic Disease. *ActaHorticulturae*. In press
183. Moyo, L.#, S.V. Ramesh, M. Kappagantu, S. Sathuvalli, N. Mitter, and H.R. Pappu (2017). Analysis of the effect of three biologically distinct strains of Potato virus Y at the potato transcriptome level. *Virology Journal* 14:129.
182. Ramesh, S.V%, P.P. Sahu, M. Prasad, S. Praveen, and H.R. Pappu (2017). Geminiviruses and plant hosts: A closer examination of the molecular arms race. *Viruses*. In press.
181. Margaria, P., L. Miozzi, C. Rosa, M.J. Axtell, M. Ciuffo, H.R. Pappu, M. Turina. 2016. Comparison of small RNA profiles in *Nicotiana benthamiana* and *Solanum lycopersicum* infected by polygonum ringspot tospovirus reveals host-specific responses to viral infection *Virus Research* 211:38–45.
180. Fletcher, S.J., A. Shrestha, J. Peters, B.J. Carroll, R. Srinivasan, H.R. Pappu, and N. Mitter (2016). The Tomato spotted wilt virus genome is processed differentially in its plant host *Arachis hypogaea* and its thrips vector *Frankliniella fusca*. *Frontiers in Plant Science* doi: 10.3389/fpls.2016.01349.
179. Ramesh, S.V%, and H.R. Pappu (2016). Sequence Characterization, molecular phylogeny reconstruction and recombination analysis of the Large RNA of Tomato spotted wilt virus (*Tospovirus: Bunyaviridae*) from the United States. *BMC Research Notes* 9:200. DOI 10.1186/s13104-016-1999-11.
178. Wang, J., Y. Zhai, W. Liu, D. Zhu, H.R. Pappu, and Q. Liu (2016). The complete genomic characterization of *plum bark necrosis stem pitting-associated virus* (PBNSPaV)

infecting sweet cherry in China. *Genome Announcements*. 2016 May 19;4(3). pii: e00413-16. doi: 10.1128/genomeA.00413-16.

177. Wang, J., Y. Zhai, W. Liu, A. Dhingra, H.R. Pappu, and Q. Liu (2016). Structure and genome organization of Cherry virus A (Capillovirus, Betaflexiviridae) from China using small RNA sequencing. *Genome Announcements*. Published online 2016 May 12. doi: [10.1128/genomeA.00364-16](https://doi.org/10.1128/genomeA.00364-16)
176. Velásquez-Valle, R., L. R. Reveles-Torres, S. Salas-Muñoz, J. A. Mauricio-Castillo, and H.R. Pappu. (2016). First confirmed report of *Iris yellow spot virus* in onion nurseries in Zacatecas, Mexico. *Plant Disease* DOI10.1094/PDIS-01-16-0061-PDN
175. Tabassum, A., S. Reitz, P. Rogers, and H. R. Pappu (2016). First Report of *Iris yellow spot virus* infecting green onion (*Allium fistulosum*) in the USA. *Plant Disease* <http://dx.doi.org/10.1094/PDIS-05-16-0599-PDN>.
174. Karavina, C., J. Ibaba, A. Gubba and H.R. Pappu (2016). First report of Iris yellow spot virus infecting garlic and leek in Zimbabwe. *Plant Disease* 100:657. <http://dx.doi.org/10.1094/PDIS-09-15-1022-PDN>
173. Pappu, H.R. 2015. Thrips-transmitted Iris yellow spot virus – A threat to onion sustainability. *Agricultural Research Journal* 52: 10-12.
172. Tripathi, D[#], G. Raikhy[%], and H.R. Pappu. 2015. Movement and nucleocapsid proteins coded by two tospovirus species interact through multiple binding regions in mixed infections. *Virology* 478:143-53. doi: 10.1016/j.virol.2015.01.009
171. Margaria, P., L. Miozzi, C. Rosa, M.J. Axtell, H.R. Pappu, M. Turina. 2015. Small RNA profiles of wild-type and silencing suppressor-deficient tomato spotted wilt virus-infected *Nicotiana benthamiana*. *Virus Research*. DOI: 10.1016/j.virusres.2015.05.021
170. Mustafa, T., D. R. Horton, W. R. Cooper, K. D. Swisher, R. S. Zack, H. R. Pappu, and J. E. Munyaneza. 2015. Probing the behavior and transmission of ‘Candidatus Liberibacter solanacearum’ to potato by three haplotypes of potato psyllid (*Bactericera cockerelli*; Hemiptera: Triozidae). *PLoS ONE* 10(9): e0138946. doi:10.1371/journal.pone.0138946
169. Renukadevi, P., K. Nagendran, S. Nakkeeran, G. Karthikeyan, M. Jawaharlal, D. Alice, V.G. Malathi and H.R. Pappu. 2015. First report of natural occurrence of Tomato spotted wilt virus in India. *Plant Disease* 99:1190. DOI 10.1094/PDIS-01-15-0126-PDN
168. Mahuku, G., B.E. Lockhart, B. Wanjala, M.W. Jones, J.N. Kimunye, L.R. Stewart, B.J. Cassone, S. Sevgan, J. Nayasani, E. Kusia, P. Lava Kumar, C.L. Niblett, A. Wangai, A. Kiggundu, G. Asea, H.R. Pappu, B.M. Prasanna, and M.G. Redinbaugh. 2015. Maize lethal necrosis (MLN), an emerging threat to maize-based food security in sub-Saharan Africa. *Phytopathology* 105:956-65. doi: 10.1094/PHYTO-12-14-0367-FI

167. Kusia, E.S., S. Subramanian, J.O Nyasani, F. Khamis, J. Villinger, E.M. Ateka, H.R. Pappu. 2015. First report of lethal necrosis disease associated with co-infection of finger millet with Maize chlorotic mottle virus and Sugarcane mosaic virus in Kenya. *Plant Disease* DOI:10.1094/PDIS-10-14-1048-PDN
166. Tripathi, D[#], and H.R. Pappu. 2015. Evaluation of Acibenzolar-S-Methyl-Induced Resistance against *Iris yellow spot tospovirus*. *European J. Plant Pathology* 142:855–864. DOI 10.1007/s10658-015-0657-0
165. Tripathi, D[#], G. Raikhy[%], R. Dietzgen, M. Goodin, and H.R. Pappu. 2015. In vivo Localization of *Iris yellow spot virus (Bunyaviridae: Tospovirus)*-encoded Proteins and Identification of Interacting Regions of Nucleocapsid and Movement Proteins. *PLoS ONE* 10(3): e0118973. doi:10.1371/journal.pone.0118973
164. Almeyda, C.V[#], G. Raikhy[%], H.R. Pappu. 2015. Characterization and comparative analysis of promoter elements from three plant pararetroviruses associated with dahlia (*Dahlia variabilis*). *Virus Genes* 51:96-104. DOI 10.1007/s11262-015-1196-7
163. Bag, S[#], H. Schwartz, C.S. Cramer, M.J. Havey, and H.R. Pappu. 2015. *Iris yellow spot virus (Tospovirus: Bunyaviridae)*: From obscurity to research priority. *Molecular Plant Pathology* 12/2014; DOI:10.1111/mp.12177. **Featured on the cover page**
161. Schwartz, H.F., Diane Alston, Jeff Alwang, Michael Bartolo, Tamla Blunt, Charles O. Boateng, Bonnie Bunn, Chris S. Cramer, Whitney Cranshaw, Jeff Davidson, Mike Derie, Jeff Doran, Keith Douce, Dan Drost, Lindsey J. du Toit, J. Gao, Thaddeus Gourd, Beth Gugino, Bob Hammon, Janet Hardin, Mary Hausbeck, George Jibilian, Jed Lafferty, Joseph LaForest, Mark S. McMillan, S. Krishna Mohan, Jarrod Morrice, Brian A. Nault, Claudia Nischwitz, George Norton, Kristen Otto, Hanu R. Pappu, Mike Petersen, Ram Sampangi, Brenda Schroeder, Will Secor, Stephanie Szostek, Ned Tisserat, Mark E. Uchanski, Jim VanKirk, Tim Waters, Prissana Wiriyajitsomboon, and Carrie Wohleb. 2014. Onion ipmPIPE: A Coordinated Effort to Improve the Management of Onion Thrips and Iris yellow spot virus for the U.S. Onion Industry. *Plant Health Progress* doi: 10.1094/PHP-FE-14-0026.
161. Almeyda, C.V[#], S.G. Eid[#], D. Saar, M. Samuitiene, and H.R. Pappu. 2014. Genetic diversity among endogenous plant pararetroviral sequences from geographically diverse sources of dahlia (*Dahlia* spp.). *Virus Genes* 48: 140-152. DOI 10.1007/s11262-013-0997-9
160. Bag, S[#], K. L. Druffel, S. Rondon, D.G. Riley and H. R. Pappu. 2014. Rapid Estimation of thrips transmitters of Iris yellow spot virus using a serological assay. *J. Economic Entomology* 107: 75-82. DOI: <http://dx.doi.org/10.1603/EC13141>
159. Cramer, C., N. Singh, N. Kamal, and H.R. Pappu 2014. Screening onion plant introduction accessions for tolerance to onion thrips and Iris yellow spot virus. *HortScience* 49:1253-1261

158. Eid, S[#], and H.R. Pappu. 2014. Biological Studies on three distinct caulimoviruses in dahlia (*Dahlia variabilis*). *Can. J Plant Pathol.* 36:110-115.
157. Eid, S[#], and H.R. Pappu. 2014. Expression of an endogenous para-retroviral genes and molecular analysis of the integration events in its plant host *Dahlia variabilis*. *Virus Genes* 48:153-159. DOI 10.1007/s11262-013-0998-8
156. Iftikhar, R[#], S.V. Ramesh[%], S. Bag, M. Ashfaq and H.R. Pappu. 2014. Global analysis of population structure, spatial and temporal dynamics of genetic diversity and evolutionary lineages of *Iris yellow spot virus* (*Tospovirus: Bunyaviridae*). *Gene* 547:111-118. DOI: 10.1016/j.gene.2014.06.036
155. Lin, Y-H[#], J. Abad, C. J. Maroon-Lango, K.L. Perry, and H.R. Pappu. 2014. Molecular characterization of domestic and exotic Potato virus S isolates and a global analysis of genomic sequences. *Archives of Virology* DOI 10.1007/s00705-014-2022-6
154. Lin, Y-H[#], D. A. Johnson, and H.R. Pappu. 2014. Effect of Potato virus S infection on late blight resistance in potato. *American J Potato Research*. DOI 10.1007/s12230-014-9394-8
153. Margaria, P., L. Miozzi, M. Ciuffo, H.R. Pappu, and M. Turina. 2014. Complete genome sequence of Polygonum ringspot virus (*Tospovirus: Bunyaviridae*). *Archives of Virology* 159:3149–3152. DOI 10.1007/s00705-014-2166-4
152. Margaria, P., L. Miozzi, M. Ciuffo, H.R. Pappu, and M. Turina 2014. Whole genome sequences of two distinct European Tomato spotted wilt virus (*Tospovirus: Bunyaviridae*) isolates. *Archives of Virology*. DOI 10.1007/s00705-014-2256-3
151. Naveed, K[#], N. Mitter, A. Harper, A. Dhingra, and H.R. Pappu. 2014. Comparative Analysis of virus-specific small RNA profiles of three biologically distinct strains of Potato virus Y (PVY) in PVY-infected potato (*Solanum tuberosum*) cv. Russet Burbank. *Virus Research* 191:153–160
150. Ramesh, S.V[%], G. Raikhy[%], C.R. Brown, and H.R. Pappu (2014). Complete genomic characterization of Potato mop top virus from the United States. *Archives of Virology* DOI 10.1007/s00705-014-2214-
149. Sundaraj, S., R. Srinivasan, A.K. Culbreath, D.G. Riley, and H.R. Pappu. 2014. Host plant resistance against *Tomato spotted wilt virus* (TSWV) in peanut (*Arachis hypogaea*) and its impact on virus transmission, virus population genetics, and vector feeding behavior and survival. *Phytopathology* 104:202-210.
148. Vemulapati, B[%], K.L. Druffel, S. Eigenbrode, A. Karasev and H.R. Pappu. 2014. Rapid and reliable detection of two members of *Luteoviridae*: *Pea enation mosaic virus* (genus *Enamovirus*) and *Bean leaf roll virus* (genus *Luteovirus*). *Annals of Applied Biology* DOI: 10.1111/aab.12126.

147. Zhai, Y[#]., S. Bag, N. Mitter, M. Turina, and H.R. Pappu. 2014. Mutational analysis of two highly conserved motifs in the silencing suppressor coded by tospoviruses (*Tospovirus*, *Bunyaviridae*). *Archives of Virology*. DOI 10.1007/s00705-013-1928-8
146. Zhai, Y[#]., R. Miglino, R. Sorrentino, V. Masenga, D. Alioto, and H.R. Pappu. 2014. Complete genomic characterization of *Eggplant mottled dwarf virus* from *Agapanthus* spp by deep sequencing and *de novo* assembly. *J. Plant Pathology* doi: 10.4454/JPP.V96I3.003
145. Zhai, Y[#]., R. Miglino, R. Sorrentino, V. Masenga, D. Alioto, and H.R. Pappu. 2014. First Report of *Eggplant mottled dwarf virus* infection of *Agapanthus* sp. in Italy. *New Disease Reports* 29:20. <http://dx.doi.org/10.5197/j.2044-0588.2014.029.020>
146. Kalischuk, M., B. Müller, A. Fusaro, D. Prüfer, P.M. Waterhouse, H.R. Pappu, and L.M. Kawchuk. 2013. Molecular characterization of Rubus yellow net virus reveals that open reading frame 1 exhibits pathogenicity determinant properties. *Virus Research* 178:306–313.
143. Mitter, N., V. Koundal%, S. Williams, and H.R. Pappu. 2013. Differential expression of virus-specific small RNAs in Tomato spotted wilt virus (*Tospovirus:Bunyaviridae*)-infected experimental and commercial hosts. *PLoS ONE* 8(10): e76276. doi:10.1371/journal.pone.0076276
142. Zhai, Y[#]., S. Bag[#], N. Mitter, M. Turina, and H.R. Pappu. 2014. Mutational analysis of two highly conserved motifs in the silencing suppressor coded by tospoviruses (*Tospovirus*, *Bunyaviridae*). *Archives of Virology*. DOI 10.1007/s00705-013-1928-8; *Arch Virol* (2014) 159:1499–1504
141. Sundaraj, S., R. Srinivasan, A.K. Culbreath, D.G. Riley, and H.R. Pappu. 2014. Host plant resistance against *Tomato spotted wilt virus* (TSWV) in peanut (*Arachis hypogaea*) and its impact on virus transmission, virus population genetics, and vector feeding behavior and survival. *Phytopathology* 104:202-210.
140. Pappu, H.R., and A. Rauf. 2013. First report of *Iris yellow spot virus* in Indonesia. *Plant Disease* 97:1665.
139. Sengoda, V.G%., J.L. Buchman, D.C. Henne, H.R. Pappu, and J.E. Munyaneza. 2013. “Candidatus *Liberibacter solanacearum*” titer over time in the potato psyllid, *Bactericera cockerelli* (Hemiptera: Trioziidae), following acquisition from infected potato and tomato plants. *Journal of Economic Entomology* 106:1964-1972. <http://www.bioone.org/doi/full/10.1603/EC13129>
138. Iftikhar, R%., S. Bag[#], M. Ashfaq and H.R. Pappu. 2013. Occurrence of *Iris yellow spot virus* infecting onion in Pakistan. *Plant Disease* 97:1517. <http://dx.doi.org/10.1094/PDIS-05-13-0502-PDN>

137. BIRTHIA, R., S. Subramanian, H. R. Pappu, J. Muthomi and R. D. Narla. 2013. Analysis of Iris yellow spot virus (IYSV, genus *Tospovirus*) replication in vector and non-vector thrips species. *Plant Pathology* Doi: 10.1111/ppa.12057
136. Bag, S[#]., N. Mitter, S. Eid[#], and H.R. Pappu. 2012. Genetic complementation between two tospoviruses facilitates the systemic movement of a plant virus silencing suppressor in an otherwise restrictive host. *PLoS ONE* <http://dx.plos.org/10.1371/journal.pone.0044803>
135. Bag, S[#]., H.F. Schwartz, and H.R. Pappu. 2012. Characterization of biologically distinct isolates of *Iris yellow spot virus* (genus *Tospovirus*, Family *Bunyaviridae*), a serious pathogen of onion. *European Journal of Plant Pathology* 134:97-104. DOI 10.1007/s10658-012-0026-1
134. Naveed, K[#]., and H. R. Pappu, 2012. Susceptibility of *Arabidopsis* ecotypes to infection by *Iris yellow spot virus* (Genus *Tospovirus*, family *Bunyaviridae*). *Plant Health Progress*. doi:10.1094/PHP-2012-0714-01-RS. Published on-line 14 July 2012.
133. BIRTHIA, R., S. Subramanian, J. Villinger, J. W. Muthomi, R. D. Narla, and H.R. Pappu. 2012. First Report of *Tomato yellow ring virus* (*Tospovirus*, *Bunyaviridae*) Infecting Tomato in Kenya. *Plant Disease* 96:1384. <http://dx.doi.org/10.1094/PDIS-05-12-0462-PDN>
132. Lobin, K., H. R. Pappu, and S. P. Benimadhu. 2012. Occurrence and distribution of Iris yellow spot virus (Genus *Tospovirus*, Family *Bunyaviridae*) on onion (*Allium cepa*) in Mauritius. *Plant Health Progress*. doi:10.1094/PHP-2012-0826-01-BR. Published on-line August 26, 2012.
131. Srinivasan, R., S. Sundaraj, H.R. Pappu, S. Diffie, D.G. Riley, and R.D Gitaitis. 2012. Transmission of *Iris yellow spot virus* by *Frankliniella fusca* and *Thrips tabaci* (Thysanoptera: Thripidae). *Journal of Economic Entomology* 105:40-47. DOI: <http://dx.doi.org/10.1603/EC11094>
130. Srinivasan, R., S. Diffie, S. Sundaraj, S. Mullis, D.G. Riley, R.D. Gitaitis, and H. R. Pappu. 2011. Evaluation of lisianthus (*Eustoma grandiflorum*) as an indicator host for *Iris yellow spot virus*. *Plant Disease* 95:1520-1527.
129. Eid, S[#]., C. V. Almeyda[#], D.E. Saar, K.L. Druffel, and H.R. Pappu. 2011. Genomic characterization of para-retroviral sequences in wild *Dahlia* spp. in natural habitats. *Archives of Virology* 156:2079–2084. DOI 10.1007/s00705-011-1076-y
128. Eid, S[#]., D.E. Saar, K.L. Druffel, and H.R. Pappu. 2011. Plant para-retroviral sequences in wild *Dahlia* species in their natural habitats in Mexican mountain ranges. *Plant Pathology*. 60, 378–383. DOI: 10.1111/j.1365-3059.2010.02367.x
127. Miglino, R., K. L. Druffel, A. R. van Schadewijk, H. R. Pappu. 2011. Molecular characterization of “*Allium virus X*”, a new potexvirus in the family *Flexiviridae*, infecting ornamental allium. *Archives of Virology* 156:2113–2115.

126. Vemulapati, B[%], K.L. Druffel, S.D. Eigenbrode, A. Karasev and H.R. Pappu. 2011. Genomic characterization of *Pea enation mosaic virus-2* from the Pacific Northwestern USA. *Archives of Virology* 156: 1897-1900. DOI 10.1007/s00705-011-1074-0
125. Cramer, C.S., S. Bag[#], H.F. Schwartz, and H.R. Pappu. 2011. Susceptibility of onion (*Allium* spp) relatives to *Iris yellow spot virus*. *Plant Disease* 95:1319.
DOI: 10.1094/PDIS-11-10-0819
124. Lobin, K., A. Saison; B. Hostachy, S.P. Benimadhu, and H.R. Pappu. 2011. First report of *Iris yellow spot virus* in onion in Mauritius. *Plant Disease*. 94: 1373.
DOI: 10.1094/PDIS-10-09-0645.
123. Vemulapati, B. [%], K.L. Druffel, S. Eigenbrode, A. Karasev and H.R. Pappu. 2010. Molecular characterization of *Pea enation mosaic virus* (genus *Enamovirus*) and *Bean leaf roll virus* (genus *Luteovirus*) from the Pacific Northwestern USA. *Archives of Virology*. 155:1713-1715. DOI: 10.1007/s00705-010-0767-0
122. Abdel-Salam, sA.M., M. Al Khazindar, S.G. Eid[#], and H.R. Pappu. 2010. Identification and characterization of caulimoviral sequences in *Dahlia variabilis* in Egypt. *African J Biotechnology*. 9: 6835-6839.
121. Lobin, K., K.L. Druffel, H. R. Pappu, and S.P. Benimadhu. 2011. First Report of Tomato yellow leaf curl virus (Family *Geminiviridae*) in Tomato in Mauritius. *Plant Disease* 94: 1261.
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3. Professional articles, non-refereed

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4. Abstracts/Conference Presentations

Papers presented in 2014

Annual meeting of the American Phytopathological Society, Minneapolis Convention Center, Minneapolis, MN, August 9-13, 2014.

1. Iftikhar, R., S.V. Ramesh, S. Bag, M. Ashfaq and H.R. Pappu. Global analysis of population structure, spatial and temporal dynamics of genetic diversity of Iris yellow spot virus (*Tospovirus: Bunyaviridae*).
2. Naveed, K., N. Mitter, A. Harper, A. Dhingra, and H.R. Pappu. Comparative Analysis of virus-specific small RNA profiles of three biologically distinct strains of *Potato virus Y* (*Potyvirus: Potyviridae*).
3. Ramesh, S.V., C.R. Brown, and H.R. Pappu. Molecular characterization of genomic components of Potato mop-top virus from the United States.
4. Ramesh, S.V, and H.R. Pappu. Plant miRNAome and soybean-infecting *Begomovirus* genomes: Identification of innate plant small RNAs in antiviral resistance.
5. Ramesh, S.V., S. Williams, N. Mitter and H.R. Pappu. Interaction map of *Tomato spotted wilt virus* (*Tospovirus: Bunyaviridae*)-specific small RNAs and the tomato transcriptome.
6. Sankaran, S., C.R. Brown, and H.R. Pappu. Magnetic resonance imaging for the detection of viral infections in potato tubers.
7. Tripathi, D., G. Raikhy and H.R. Pappu. Identification of interacting regions of the movement protein and nucleocapsid protein of two distinct tospoviruses (*Tospovirus: Bunyaviridae*).
8. Zhai, Y., B. Adhikari, J. Cheng, and H.R. Pappu. Three dimensional structural prediction of the silencing suppressor protein coded by *Tomato spotted wilt virus* (*Tospovirus: Bunyaviridae*).
9. Zhai, Y., R. Miglino, R. Sorrentino, V. Masenga, D. Alioto, and H. R. Pappu. Complete genomic characterization of eggplant mottled dwarf (*Rhabdovirus: Rhabdoviridae*) virus from *Agapanthus* sp. by deep sequencing and *de novo* assembly.

Papers presented at other conferences

- Ciuffo, M., P. Margaria, L. Miozzi, H. Pappu, R. Resende and M. Turina (2014). Abundant host specific accumulation of head-to-tail dimers and/or defective dimers of the small genomic segment in members of the genus *Tospovirus*, family *Bunyaviridae*. Intl. Congress of Virology, Montreal, July 2014.
- Sankaran, S., H.R. Pappu, and C.R. Brown (2014). Computer tomography (CT) imaging for detecting anomalies in potato tubers. Annual Meeting, American Association of Agricultural and Biological Engineers. July 13-16, 2014, Montreal, QC Canada.

Tripathi, D., M. Goodin, R. Dietzgen, and H.R. Pappu. (2013). Investigating the Protein-Protein Interactions of Tospoviruses (Bunyaviridae) using Bimolecular Fluorescence Complementation (BiFC). Paper presented at the Fall Symposium, 'PhenoDays: Imaging and Robotics for the 21st Century Science', Donald Danforth Plant Science Center, St. Louis, MO. Sept 25-27, 2013.

Papers presented at the 2013 Annual meeting of the American Phytopathological Society, August 10-14, 2013, Austin, TX:

Naveed, K., and H.R. Pappu. Interactions between *Potato virus S* and *Potato virus Y* in different genetic backgrounds of potato. *Phytopathology* 103: S2.110.

Tripathi, D., M. Goodin, R.G. Dietzgen, and H.R. Pappu. Interactions between tospovirus proteins in mixed infections using bimolecular fluorescence complementation (BiFC). *Phytopathology* 103:S2.148.

Zhai, Y., and H.R. Pappu. Fine structure mapping of silencing suppressor activity of a tospovirus (*Bunyaviridae*, *Tospovirus*). *Phytopathology* 103:S2.110.

Zhai, Y., N. Mitter, and H.R. Pappu. 2013. What makes viruses overcome host's defense. Poster selected for presentation at the Annual Academic Showcase, Washington State University, Pullman, WA; March 29, 2013.

Tripathi, D., R. Dietzgen, M. Goodin, and H.R. Pappu. 2013. Unravelling the in vivo interactions of negative-stranded RNA viruses using Bimolecular Fluorescence (BiFC) and confocal microscopy. Poster selected for presentation at the Annual Academic Showcase, Washington State University, Pullman, WA; March 29, 2013.

Abstracts (posters and talks) presented at the annual meeting of the American Phytopathological Society, Providence, RI. Aug 3-7, 2012.

134. Iftikhar, R., V. Koundal, H.R. Pappu. 2012. Analysis of *Iris yellow spot virus* N gene sequences from the USA, 2003-2011.

133. Bag, S., S. I. Rondon, H. R. Pappu. Seasonal dynamics of *Iris yellow spot virus* transmitters among *Thrips tabaci* populations from onion fields

132. Tripathi, D., M. Goodin, R. Dietzgen, and H.R. Pappu. In vivo interaction studies of *Iris yellow spot virus* proteins using Bimolecular Fluorescence (BiFC) technique

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129. Bag, S., C. S. Cramer, H.F. Schwartz, and H.R. Pappu. 2011. Biological Characterization of Distinct Strains of Iris yellow spot virus (genus *Tospovirus*). *Phytopathology* 101:S12.
128. Bag, S., N. Mitter, and H.R. Pappu. 2011. Genetic Complementation between Two Viruses in an Otherwise Restrictive Host. *Phytopathology* 101:S12.
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126. Koundal, V., N. Mitter, S. Williams, and H.R. Pappu. 2011. Characterization of small RNAs derived from Tomato spotted wilt virus infection by deep sequencing. *Phytopathology* 101:S93.
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123. Mitter, N., K. Chua, S. Bag, K.L. Druffel, R. Mitchell, and H.R. Pappu. 2011. Evaluating artificial microRNAs for engineering resistance against *tospoviruses*. *Phytopathology* 101:S121.
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106. Pappu, H.R., B. Mandal, R.K. Jain, A.S. Csinos A.K. Culbreath, and D.G. Riley. 2007. Reducing the global impact of thrips-transmitted tospoviruses in diverse cropping systems: Successes gained and challenges that lie ahead. 10th International Plant Virus Epidemiology Symposium: Controlling Epidemics of Emerging and Established Plant Virus Diseases-The Way Forward. International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad, India. p51.
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