UNIVERSITAS
GADJAH MADA
Karakterisasi Molekuler Begomovirus pada Tanaman Cabai (Capsicum frutescens L.) di Desa Pandowoharjo, Sleman, Yogyakarta
Ocza Aradya Siwirumanti, Dr. Aprilia Sufi Subiastuti, S.Si.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Abebe, D. A., Bentum, A. V., Suzuki, M., Ando, S., Takahashi, H., and Miyashita, S. 2021. Plant death caused by inefficient induction of antiviral R-gene-mediated resistance may function as a sucidial population resistance mechanism. *Commun Bio*, 4(1): 1-12.

Akhtar, S., Khan, A. J., Singh, A. S., and Briddon, R. W. 2014. Identification of a disease complex involving a novel monopartite *Begomovirus* with beta- and alphasatellites associated with okra leaf curl disease in Oman. *Archives of Virology*, 159(5): 1199 1205.

Ala-Poikela, M., Svensson, E., Rojas, A., Horko, T., Paulin, L., Valkonen, J. P. T., Kvarnheden, A. 2005. Genetic diversity and mixed infections of *Begomovirus*es infecting tomato, pepper, and cucurbit crops in Nicaragua. *Plant Pathology*, 54(4): 448-459.

Ali, N., Rita, C. P. R., Alexandre, D. T. C., and Marco, A. K. 2017. Current nucleic acid extraction methods and theri implication to point of care diagnostics. *Biomed Research International*, 1: 1-13.

Amin, I., Ahmed, N., Kamal, H., and Mansoor, S. 2021. *Chapter 7 - Geminiviruses and their Interaction with Host Proteins In Plant Virus-Host Interaction (Second Edition)*. Academic Press. Pakistan.

Amrullah, S. H., Zulkarnain, Juhari, D., and Ar, R. A. 2023. Deteksi keberadaan virus pada sampel bawang merah (*Allium ascalonicum*) dan bawang putih (*Allium sativum*) di Laboratorium Balai Besar Karantina Pertanian Makassar. *FILOGENI: Jurnal Mahasiswa Biologi*, 3(1): 6-11.

Aulia, E., Mimi, S., and Tunjung, p. 2022. Deteksi molekuler dan analisis genetik *Begomovirus* pada tanaman cabai di Desa Pematang Donok. Jurnal Ilmu-Ilmu Pertanian Indonesia, 24(2): 69-74.

Badan Pusat Statistik Kabupaten Sleman. 2018. *Kabupaten Sleman dalam Angka 2018*. BPS Kabupaten Sleman. Sleman.

Bhaskaran, S., and Chithralekha, S. 2022. A review of next generation sequencing methods and its applications in laboratory diagnosis. Journal of Pure and Applied Microbiology, 16(2): 825-833.

Briddon, R. W., and Stanley, J. 2006. Subviral agents associated with plant single stranded DNA viruses. *Virology*, 344: 198-210.

Brown, J.K., Fauquet, C.M., Briddon, R.W., Zerbini, M., Moriones, E. and Navas Castillo, J. 2012. *Family Geminiviridae, In: Virus Taxonomy: Classification and Nomenclature of Viruses—Ninth Report of the International Committee on Tax onomy of Viruses*. Elsevier Academic Press. London. pp. 351–373.

Brown, J. K., Zerbini, F. M., Navas-Castillo, J., Moriones, E., Ramos-Sobrinho, R., Silva, J. C. F., and Fiallo-Olive, E. 2015. Revision of *Begomovirus* taxonomy based on pairwise sequence comparisons. *Arch Virol*, 160(6): 593-619.

Cheng, X., Wang, X., Wu, J., Briddon, R. W., and Zhou, X. 2011. βC1 encoded by *Tomato yellow leaf curl China* betasatellite forms multimeric komplexes in vitro and in vivo. *Virology*, 409(2): 156–162.

Colson, P., Richet, H., Desnues, C., Balique, F., Moal, V., Grob, J. J., Berbis, P., Lecoq, H., Harle, J. R., Berland, Y., and Raoult, D. 2010. *Pepper mild mottle virus*, a plant virus associated with specific immune responses, fever, abdominal pains, and pruritus in humans. *PloS One*, 5(4): 1-12.

UNIVERSITAS
GADJAH MADA
Karakterisasi Molekuler Begomovirus pada Tanaman Cabai (Capsicum frutescens L.) di Desa Pandowoharjo, Sleman, Yogyakarta
Ocza Aradya Siwirumanti, Dr. Aprilia Sufi Subiastuti, S.Si.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Defitra, N. K., Zahra, H. A., Surwadinata,A., Saputra, R., Subiastuti, A. S., Ali, M. A. H., and Santosa, A. I. 2025. Evaluation of krusty/homer and spg1/spg2 primer pairs in identification of six *Begomovirus*es commonly found in Indonesia. *Journal of Tropical Biodiversity and Biotechnology*, 10(2): 1-9.

Faizal, N., and Ariefin, M. N. 2022. Respon pertumbuhan vegetative tanaman cabai merah (*Capsicum annum* L.) terhadap pupuk kotoran sapi dan konsentrasi oligokitosan. *CIWAL: Jurnal Pertanian*, 1(2): 27-37.

Fauquet, C. M., Briddon, R. W., Brown, J. K., Moriones, E., Stanley, J., Zerbini, M., and Zhou, X. 2008. Geminivirus strain demarcation and nomenclature. *Archives of Virology*. 1-41.

Febria, D., Safitri, B., Wahyu, P. N., Yeni, Kartina, R., and Utami, P. S. 2023. Karakteristik gejala dan tingkat kejadian penyakit kuning keriting tanaman cabai (*Capsicum* sp.) dalam budidaya sistem organik. *Journal of Horticulture Production Technology*, 1(2): 95-101.

Fiallo-Olive, E., Remedios, T., and Navas-Castillo, J. 2016. Deciphering the biology of deltasatellites from the new world: Maintenance by new world *Begomovirus*es and whitefly transmission. *New Phytologist*, 212(3): 680-692.

Fondong, V. N., Pita, J. S., Rey, M., Kochko, A., Beachy, R. N., and Fauquet, C. M. 2000. Evidence of synergism between African cassava mosaic virus and a new double-recombinant geminivirus infecting cassava in Cameroon. *Journal of General Virology*, 81(1): 1-7.

Ganefianti, D.W., Hidayat, S. H., and Syukur, M. 2017. Susceptible phase of chili pepper due to *yellow leaf curl Begomovirus* infection. *Int. J. Adv. Sci. Eng. Inf. Technol*. 7(2): 594 601.

Gao F., Jin J., Zou W., Liao F., Shen J. 2016. Geographically driven adaptation of *Chilli veinal mottle virus* revealed by genetic diversity analysis of the coat protein gene. *Arch. Virol,* 161: 1329-1333

Garcia, E. G., Farnleitner, A. H., Mach, R. L., Krska, R., and Brunner, K. 2016. A rapid genomic DNA extraction method and its combination with helicase dependendt amplification for the detection of genetically modified maize. *Anal Methods*, 8: 136-141

Garibyan, L., and Avashia, N. 2014. Research tehnique made simple: Polymerase Chain Reaction (PCR). Journal Invest Dermatol, 133(3): 1-8.

Gaswanto, R., Syukur, M., Hidayat, S. H., and Gunaeni, N. 2016. Identifikasi gejala dan kisaran inang enam isolate *Begomovirus* cabai di Indonesia. *J Hortic*, 26(2): 223-234.

Goundar, S. P., Sandhya, R., Nuramirashafikah, M. R., Mohd, F. A. B., and Hasan, N. N. F. 2024. Molecular detection and identification of *Begomovirus* infecting cucumber (*Cucumis sativus*) in Terengganu, Malaysia. *Malaysian Applied Biology*, 53(2): 81-92.

Gunaeni, N., Wiwin, S., Rini, M., and Tati, R. 2008. *Penyakit virus kuning dan vektornya serta cara pengendaliannya pada tanaman sayuran*. Balai Penelitian Tanaman Sayuran. Bandung.

Gunaeni, N., Wulandari, A. W., and Hudayya, A. 2015. Pengaruh bahan ekstrak tanaman terhadap patogenesis *related protein* dan asam salisilat dalam menginduksi resistensi tanaman cabai merah terhadap virus kuning keriting. *Jurnal Hortikultura*, 25(2): 160-170.

UNIVERSITAS
GADJAH MADA
Karakterisasi Molekuler Begomovirus pada Tanaman Cabai (Capsicum frutescens L.) di Desa Pandowoharjo, Sleman, Yogyakarta
Ocza Aradya Siwirumanti, Dr. Aprilia Sufi Subiastuti, S.Si.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Hamida, R., and Suhara, C. 2013. Pengaruh infeksi *Cucumber mosaic virus* (CMV) terhadap morfologi, anatomi, dan kadar klorofil daun tembakau cerutu. *Buletin Tanaman Tembakau, Serat, & Minyak Industri*, 5(1): 11-19.

Handoyo, D., and Rudiretna, A. 2001. Prinsip umum dan pelaksanaan *Polymerase Chain Reaction* (PCR). *Unitas*, 9(1): 17-29.

Hanley-Bowdoin, L., Eduardo, R. B., Dominique, R., and Shahid, M. 2013. Geminivirus: Masters at redirecting and reprogamming plant processes. *Nat Rev Microbiol*, 11(11): 77-88.

Huang, C., Xie, Y., Zhao, L., Ren, H., and Li, Z. 2013. A naturally occurring defective dna satellite associated with a monopartite *Begomovirus*: evidence for recombination between alphasatellite and betasatellite. *Viruses*, 5(9): 2116–2128.

ICTV [International Committee on Taxonomy of Viruses]. 2012. *Virus Taxonomy: Classification and Nomenclature of Viruses*. Elsevier Academic Press. London.

Idris, A. M., Shahid, M. S., Briddon, R. W., Khan, A. J., Zhu, J. K., and Brown, J. K. 2011. An unusual alphasatellite associated with monopartite *Begomoviruses* attenuates symptoms and reduce betasatellite accumulation. *J. Gen. Virol*, 92(3): 706-717.

Jamsari, J., and Pedri, J. 2013. Complete nucleotide sequence of DNA-A like genome and DNA-β of monopartite *Pepper yellow leaf curl virus*, a dominant *Begomovirus* infecting *Capsicum annuum* in West Sumatera Indonesia. *Asian Journal of Plant Pathology*, 7(1): 1-14.

Jamsari, J., Setiawan, M. A., Nova, B., Syukriani, L., Aisyah, S. N., and Asben, A. 2021. Development of rapid and less hazardous plant DNA protocol using potassium phosphate buffer. *Pakistan Journal of Biological Sciences*, 24(12): 1309-1315.

Joshi, M., and Deshpande, J. D. 2010. Polymerase chain reaction: methods, principles and application. *International Journal of Biomedical Research*, 1(5): 81-97.

Kandito, A., Sedyo, H., Sri, S., Susamto, S., and Yepi, A. W. 2020. First report of naturally occuring recombinant non-coding DNA satellite associated with *Tomato yellow leaf curl Kanchanaburi virus* on eggplant in Indonesia. *BIODIVERSITAS*, 21(1): 129-136.

Kandito, A., Sedyo, H., Sri, S., and Susamto, S. 2021. A recombinant DNA-satellite associated with *Pepper yellow leaf curl Indonesia virus* in highland area. *Indonesian Journal of Biotechnology*, 26(2):89-90.

Kaur C., Kumar S., Krishna Raj S. 2015. Association of a distinct strain of *Chilli veinal mottle virus* with mottling and distortion disease of *Datura inoxia* in India. *Arch. Phytopathol. Pflanzenschutz*, 48: 545–554.

Kenyon, L., Kumar, S., Tsai, W. S., and Hughes, J.D.A. 2014. Virus diseases of peppers (*Capsicum* spp.) and their control in Advances in virus research. *Elsevier*, 297-354.

Khan, Z. A., and Jawaid, A. K. 2017. Characterization of a new *Begomovirus* and betasatellite associated with chili leaf curl disease in India. *Arch Virol*, 162(2): 561-565.

Koch, C., Wabbel, K., Eber, F. J., Krolla-Sidenstein, P., Azucena, C., Gliemann, H., Eiben, S., Geiger, F., and Wege, C. 2015. Modified TMV particles as beneficial scaffolds to present sensor enzymes. *Front Plant Sci*, 6: 1-17.

UNIVERSITAS
GADJAH MADA
Karakterisasi Molekuler Begomovirus pada Tanaman Cabai (Capsicum frutescens L.) di Desa Pandowoharjo, Sleman, Yogyakarta
Ocza Aradya Siwirumanti, Dr. Aprilia Sufi Subiastuti, S.Si.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Kon, T., Sri, H. H., Shu, H., Hideki, T., and Masato, I. 2007. The natural occurrence of two distinct *Begomovirus*es associated with DNA β and a recombinant DNA in a tomato plant from Indonesia. *Phytopathology*, 96(5): 1-25.

Kumar, S., Stecher, G., Li, M., Knyaz, C., and Tamura, K. 2018. MEGA X: Molecular evolutionary genetics analysis across computing platforms. *Molecular Biology and Evolution*, 35(6): 1547-1549.

Kwak, H, R., Su, B. H., Hee, S. B., Bueyong, P. Hong, S. C., Si, S. M., and Mu, M. K. 2022. Incidence and molecular identification of *Begomovirus*es infecting tomato and pepper in Myanmar. *Plants*, 11(8): 1-13.

Masnilah, R., Wahyuni, W. S., Suhartiningsih, D. W., Majid, A., Addy, H. S., and Wafa, A. 2020. Insidensi dan keparahan penyakit penting tanaman padi di Kabupaten Jember. *Agritop*, 18(1): 1-12.

Manzila, I., Hidayat, S. H., Mariska, I., aand Sujiprihati, S. 2011. Virulensi empat isolate *Chilli veinal mottle potyvirus* pada tanaman cabai (*Capsicum annuum* L.). *J. HPT. Tropika*, 11(2): 122-129.

Melgarejo, T. A., Kon, T., Rojas, M. R., Carrasco, L. P., Zerbini, F. M., and Gilbertson, R. L. 2013. Characterization of a new world monopartite *Begomovirus* causing leaf curl disease of tomato in Ecuador and Peru reveals a new direction in geminivirus evolution. *Journal of Virology,* 87(10): 5397-5413.

Miftakhurohmah, Nyana, I. D. N., Damayanti, T. A., and Noveriza, R. 2017. Identifikasi molekuler *Cucumber mosaic virus* (CMV) asal tanaman nilam (*Pogostemon cablin*). *Jurnal Littri*, 23(1): 11-17.

Milosevic, D., Stankovic, V., Bulajic, A., Ignjatov, M., Nikolic, Z., Petrovic, G., and Krstic, B. 2015. Detection and molecular characterization of *Pepper mild mottle virus* in Serbia. *Genetika*, 47(2): 651-663.

Modrow, S., Falke, D., Truyen, U., and Schatzl, H. 2013. Viruses: Definition, structure, classification. *Springer Nature*, 12: 17-30.

Mubin, M., Ijaz, S., Hasan, M., Younus, A., Qazi, J., and Nawaz-ul Rehman, M. S. 2020. Journey of *Begomovirus* betasatellite molecules: from satellites to indispensable partners. *Virus Genes*, 56: 16-26.

Murtiyaningsih, H. 2017. Isolasi DNA genom dan identifikasi kekerabatan genetik nanas menggunakan RAPD (*Random Amplified Polimorfic* DNA). *Agritrop,* 15(1): 84-93.

Nabillah, A., Intan, S. A., Icha, K. N. S., Mimi, S., and Hendri B. Komunikasi singkat *Begomovirus* yang berasosiasi dengan gejala mosaik kuning pada tanaman terung di Bengkulu. *Jurnal Fitopatologi Indonesia*, 20(1): 47-53.

Nalla, M. K., Schafleitner, R., Pappu, H. R., Barchenger, D. W. 2023. Current status, breeding strategies and future prospects for managing chili leaf curl virus disease and associated *Begomovirus* in chilli (*Capsicum* spp.). *Frontiers in Plant Science*, 14: 1-25.

Nawaz-ul Rehman, M. S., and Fauquet C. M. 2009. Evolution of geminiviruses and their satellites. *FEBS Letters*, 583(12): 1825-1832.

Nugraha, F., Dewi, I. R., Yolla, P. A., and Herman. 2014. Analisis sebagian sekuen gen ferritin2 pada padi (*Oryza sativa* L.) Indragiri Hilir, Riau. *Biosaintifika*, 6(2): 94-103.

Pei, X. M., Martin, H. Y. Y., Alex, N. N. W., Hin, F. T., Allen, C. S. Y., Aldrin, K. Y. Y., and Sze, C. W. 2023. Targeted sequencing approach and its clinical applications for the molecular diagnosis of human diseases. *Cells*, 12(3): 1-25.

UNIVERSITAS
GADJAH MADA
Karakterisasi Molekuler Begomovirus pada Tanaman Cabai (Capsicum frutescens L.) di Desa Pandowoharjo, Sleman, Yogyakarta
Ocza Aradya Siwirumanti, Dr. Aprilia Sufi Subiastuti, S.Si.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Pertiwi, M. A. K. P., Sedyo, H., Susamto, S., Sri, S., and Argawi, K. 2021. Identifikasi molekuler *Mungbean yellow mosaic India virus* dan betasatelit yang berasosiasi dengan gejala mosaik kuning pada kacang panjang di Sleman, Yogyakarta. *Jurnal Fitopatologi Indonesia*, 17(6): 251-260.

Phillips, A., Janies, D., and Wheeler, W. 2000. Multiple sequence alignment in phylogenetic analysis. *Molecular Phylogenetics and Evolution*, 16(3): 317-330.

Ratnawati, L., and Sulistyaningrum, D. R. 2019. Penerapan *random forest* untuk mengukur tingkat keparahan penyakit pada daun apel. *Jurnal Sains dan Seni*, 8(2): 71-77.

Rojas, M. R., Gilbertson, R. L., Russel, D. R., and Maxwell, D. P. 1993. Use of degenerate primers in the polymerase chain reaction to detect whitefly-transmitted geminivirus. *Plant Dis*, 77: 340-347.

Sakata, J., Shibuya, Y., Sharma, P., and Ikegami, M. 2008. Strains of a new bipartite *Begomovirus*, *Pepper yellow leaf curl Indonesia virus* in leaf curl diseased tomato and yellow vein diseased ageratum in Indonesia. *Arch Virol*, 153912): 2307-2313.

Santoso, T. J., Hidayat, S. H., Herman, M., and Sudarsono. 2013. Aplikasi teknik *Polymerase Chain Reaction* (PCR) menggunakan primer *degenerate* dan spesifik gen AV1 untuk mendeteksi *Begomovirus* pada tomat (*Lycopersicon esculentum* Mill). *J. Hort. Indonesia*, 4(3): 140-149.

Sayekti, T. W. D. A., Syukur, M., Hidayat, S. H., and Maharijaya, A. 2021. Morphological response and genetic variability of four species of chili pepper (*Capsicum* spp.) under infection of *Pepper yellow leaf curl virus*. *BIODIVERSITAS*, 22(11): 4758-4765.

Seal, S. E., Vanden-Bosch, F., and Jeger, M. J. 2006. Factors influencing *Begomovirus* evolution and their increasing global significance: Implications of sustainable control. *Critical Review in Plant Science*, 25: 23-46.

Selangga, D. G., and Listihani. 2021. Molecular identification of *Pepper yellow leaf curl* Indonesia virus on chili pepper in Nusa Penida Island. *J. HPT Tropika*, 21(2): 97-102.

Setiyobudi, R. M., Subiastuti, A. S., and Daryono, B. S. 2020. The effect of *Begomovirus* infection on phenotypic characters of *Cucumis melo* L. 'Melona'. *AIP Conference Proceedings*, 3(7): 1-7.

Sharma, V. K., Basu, S., and Chakraborty, S. 2015. RNAi mediated broad-spectrum transgenic resistance in *Nicotiana benthamiana* to chilli-infecting *Begomovirus*es. *Plant Cell Reports*, 34(8): 1389–1399.

Shopian, A., and Syukur, A. 2021. Short communication analysis of purity and concentration of isolated DNA in making raw DNA of rat species. *ERUDITIO*, 1(2): 1-5.

Sidik, E. A. 2021. Deteksi molekuler asosiasi *Begomovirus* dengan penyakit keriting kuning cabai di Pakis dan Banyuurip, Magelang Indonesia. *Jurnal Ilmu Pertanian Tropika dan Subtropika*, 6(1): 1-6.

Sipriyadi, Abe, N. A. R., Welly, D., Risky, H. W., Mimi, S., Cindy, M. H., Yuni, K., and Redo, S. 2022. Pencirian genetik *Pepper yellow leaf curl virus* pada tanaman cabai merah (*Capcisum annuum*) di Bengkulu. *Jurnal Ilmu Pertanian Indonesia*, 27(4): 574-581.

UNIVERSITAS
GADJAH MADA
Karakterisasi Molekuler Begomovirus pada Tanaman Cabai (Capsicum frutescens L.) di Desa Pandowoharjo, Sleman, Yogyakarta
Ocza Aradya Siwirumanti, Dr. Aprilia Sufi Subiastuti, S.Si.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Srivastava, A., Mangal, M., Saritha, R. K., and Kalia, P. 2017. Screening of chili pepper (*Capsicum* spp.) for resistance to the *Begomovirus* causing chili leaf curl disease in India. *Journal Crop Protection*, 2(7): 177-185.

Subiastuti, A. S., Putri, A. C., Permadani, C. G., and Daryono, B. S. 2021. Effect of screen house on disease severity and coat protein diversity of *Begomovirus*-infected *Capsicum frutescens* L. 'Cempluk' from Indonesia. *Pertanika Journal of Tropical Agricultural Science*, 44(2). 449-463.

Sudiono, N. Y., Hidayat, S. H., and Hidayat, P. 2005. Penyebaran dan deteksi molekuler virus gemini penyebab penyakit kuning pada tanaman cabai di Sumatera. *Jurnal Hama dan Penyakit Tumbuhan Tropika*, 5(2): 113-121.

Sukamto, Kon, T., Hidayat, S. H., Ito, K., Hase, S., Takahashi, H., and Ikegami, M. 2005. *Begomovirus*es associated with leaf curl disease of tomato in Java, Indonesia. *Journal Phytopathology*, 153: 562-566.

Sulandari, S. 2006. *Pepper yellow leaf curl* disease in Indonesia. *Jurnal Perlindungan Tanaman Indonesia*, 12(1): 1-12.

Sutrawati, M., Nadrawati, Djamilah, and Ewa, A. 2023. Deteksi dan identifikasi *Begomovirus* pada tembakau yang ditanam tumpang sari dengan tanaman cabai. *Jurnal Agrikultura*, 34(3): 369-374.

Syller, J. 2012. Facilitative and antagonistic interactions between plant viruses in mixed infections. *Molecular Plant Pathology*, 13(2): 204-216.

Tanzil, A. I., and Fanata, W. I. D. 2024. Pengaruh teknik isolasi DNA genom tanaman tembakau terhadap kualitas dan kuantitas hasil ekstraksi. *Agroadix*, 7(2): 21-28.

Tasma, I. M. 2015. Pemanfaatan teknologi sekuensing genom untuk mempercepat program pemuliaan tanaman. *Jurnal Penelitian dan Pengembangan Pertanian*, 34(4): 159-168.

Taufik, M., Khaeruni, A., and Rombe, W. S. L. 2011. Penggunaan ELISA untuk mendeteksi *Cucumber mosaic virus* dan *Tobacco mosaic virus* pada tanaman cabai. *Jurnal Fitomedika*, 7(3): 195-200.

Tsai W. S., Huang Y. C., Zhang D. Y., Reddy K., Hidayat S. H., and Srithongchai W. 2008. Molecular characterization of the CP gene and 3' UTR of *Chilli veinal mottle virus* from South and Southeast Asia. *Plant Pathol,* 57: 408-416.

Tsai, W. S., Shih, S. L., Kenyon, L., Green, S. K., and Jan, F. J. 2011. Temporal distribution and pathogenicity of the predominant tomato infecting *Begomovirus*es in Taiwan. *Plant Pathology*, 60(4): 787-799.

Van Rogenmortel, M. H. V., Fauquet, C. M., Bishop, D. H. L., Carstens, E., Estes, M. K., Lemon, S. M., and Wickner, R. B. 2000. Virus taxonomy. *Seventh Report of the Internasional Committee on Taxonomy of Viruses*. Academic Press. San Diego.

Varma, A., and Malathi, V. G. 2005. Emerging geminivirus problems: A serious threat to crop production. *Annals of Applied Biology*, 142(2): 145-164.

Venkataravanappa, V., Ashwathappa, K. V., Kallingappa, P., Shridhar, H., Reddy, P. H., Reddy, M. K., and Reddy, C. N. L. 2023. Diversity and phylogeography of *Begomovirus*es and DNA satellites associated with the leaf curl and mosaic disease complex of eggplant. *Microbial Pathogenesis*, 180: 1-17.

Wang, X., Liu, F., Zhou, G., Li, X. H., and Li, Z. 2006. Detection and molecular characterization of *Pepper mild mottle virus* in China. *J. Phytopath*. 154, 755-757.

UNIVERSITAS
GADJAH MADA
Karakterisasi Molekuler Begomovirus pada Tanaman Cabai (Capsicum frutescens L.) di Desa Pandowoharjo, Sleman, Yogyakarta
Ocza Aradya Siwirumanti, Dr. Aprilia Sufi Subiastuti, S.Si.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Whitfield, A. E., Bryce, W. F., and Dorith, R. 2015. Insect vector mediated transmission of plant viruses. *Virology*, 278-289.

Wiguna, G., Rahmat, S., and Yenny, M. 2015. Respon beberapa galur tomat (*Lycopersicum esculentum* Mill.) terhadap penyakit busuk daun (*Phytophthora infestans* (Mont.) de Bary). *MEDIAGRO*, 11(2): 1-10.

Wilisiani, F. 2019. Deteksi *Begomovirus* pada tanaman cabai di Magelang Indonesia. *Jurnal Agroteknologi*, 3(1): 1-10.

Yang J., Dong J., Zhang T. J., Wang R., Luo Z. P., Luo H. Y., et al. 2013. A new isolate of *Chilli veinal mottle virus* that infects tobacco in China. *J. Plant Pathol,* 95: 187–190.

Zhou, X. 2013. Advances in understanding *Begomovirus* satellite. *Ann Rev Phytopathol*, 51(1): 357-381.

Zitter, T. A. & Murphy, J. F. 2009. The plant health instructor: *Cucumber mosaic virus*. *American Phytopathological Society.*