KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Abbott, W. S. (1925). A method of computing the effectiveness of an insecticide. *J. econ. Entomol*, *18*(2), 265-267.

Abed, W. H., & Kareem, D. K. (2022). Identification of some fourth instar larvae of the mosquito (Diptera, Culicidae) using scanning electron microscope (SEM) in Basrah Province, Iraq. *Basrah Journal of Agricultural Sciences*, *35*(2), 173-184.

Abílio, A. P., Abudasse, G., Kampango, A., Candrinho, B., Sitoi, S., Luciano, J., ... & Gudo, E. S. (2018). Distribution and breeding sites of *Aedes aegypti* and Aedes albopictus in 32 urban/peri-urban districts of Mozambique: implication for assessing the risk of arbovirus outbreaks. *PLoS neglected tropical diseases*, *12*(9), e0006692.

Abreu, F. V. S. D., Morais, M. M., Ribeiro, S. P., & Eiras, Á. E. (2015). Influence of breeding site availability on the oviposition behaviour of *Aedes aegypti*. *Memórias do Instituto Oswaldo Cruz*, *110*(5), 669-676.

Achee, N. L., Gould, F., Perkins, T. A., Reiner Jr, R. C., Morrison, A. C., Ritchie, S. A., ... & Scott, T. W. (2015). A critical assessment of vector control for dengue prevention. *PLoS neglected tropical diseases*, *9*(5), e0003655.

Achee, N. L., *et al*. (2019). Alternative strategies for mosquito-borne arbovirus control. *PLoS Neglected Tropical Diseases*, 13(1), e0006822.

Achee, N. L., Gould, F., Perkins, T. A., Reiner Jr, R. C., Morrison, A. C., Ritchie, S. A., ... & Scott, T. W. (2015). A critical assessment of vector control for dengue prevention. *PLoS neglected tropical diseases*, *9*(5), e0003655.

Aïzoun, N., Ossè, R., Azondekon, R., Alia, R., Oussou, O., Gnanguenon, V., Aikpon, R., Padonou, G.G. and Akogbéto, M. 2013. Comparison of the standard WHO susceptibility tests and the CDC *Bottle bioassay* for the determination of insecticide susceptibility in malaria vectors and their correlation with

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

biochemical and molecular biology assays in Benin, West Africa. *Parasites & vectors*. 6: p.1-10.

Akollo, R. (2024). Preferences for breeding places for *Aedes* spp. mosquitoes on materials and location of containers in the working area of Lateri Health Center, Ambon City. *Journal of Medical Laboratory in Infectious and Degenerative Diseases*, *2*(1), 1-7.

Agustin, I., Tarwotjo, U., & Rahadian, R. (2017). Perilaku bertelur dan siklus hidup *Aedes aegypti* pada berbagai media air. *Jurnal Akademika Biologi*, *6*(4), 71-81.

Agustina, E., & Emil, M. F. P. (2024). Breeding place preference of *Aedes* sp. at the tsunami area Banda Aceh city. *Journal of Biotechnology and Natural Science*, *4*(1), 01-07.

Al Naggar, Y., Fahmy, N. M., Alkhaibari, A. M., Al-Akeel, R. K., Alharbi, H. M., Mohamed, A., ... & Alharbi, H. A. (2025). Mechanisms and genetic drivers of resistance of insect pests to insecticides and approaches to its control. *Toxics*, *13*(8), 681.

Al-Rashidi, H. S., Alghamdi, K. M., Al-Otaibi, W. M., Al-Solami, H. M., & Mahyoub, J. A. (2022). Effects of blood meal sources on the biological characteristics of *Aedes aegypti* and Culex pipiens (Diptera: Culicidae). *Saudi Journal of Biological Sciences*, *29*(12), 103448.

Alarcón, É. P., Segura, Á. M., Rúa-Uribe, G., & Parra-Henao, G. (2014). Ovitraps evaluation for surveillance and control of *Aedes aegypti* in two urban settlements of Uraba, Antioquia. *Biomedica*, *34*(3), 409-424.

Alvarado-Castro, V., Paredes-Solís, S., Nava-Aguilera, E., Morales-Pérez, A., Alarcón-Morales, L., Balderas-Vargas, N. A., & Andersson, N. (2017). Assessing the effects of interventions for *Aedes aegypti* control: systematic review and meta-analysis of cluster randomised controlled trials. *BMC public health*, *17*(Suppl 1), 384.

UNIVERSITAS
GADJAH MADA
**KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN**
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Althoff, R. A., & Huijben, S. (2022). Comparison of the variability in mortality data generated by CDC *Bottle bioassay*, WHO tube test, and topical application *bioassay* using *Aedes aegypti* mosquitoes. *Parasites & Vectors*, *15*(1), 476.

Amar, A. N. (2022). *Pemetaan Densitas Larva Aedes aegypti Berdasarkan Sanitasi Toilet Tempat-Tempat Umum pada Daerah Endemis DBD di Wilayah Kerja Puskesmas Wawondula= Mapping of Aedes aegypti Larva Density Based on Toilet Sanitation in Public Places at DHF Endemic Areas in the Work Area of Wawondula Public Health Center* (Doctoral dissertation, Universitas Hasanuddin).

Amelia-Yap, Z. H., Chen, C. D., Sofian-Azirun, M., Lau, K. W., Suana, I. W., -, H., ... & Low, V. L. (2018). Efficacy of mosquito coils: cross-resistance to pyrethroids in *Aedes aegypti* (Diptera: Culicidae) from Indonesia. *Journal of economic entomology*, *111*(6), 2854-2860.

Amelia-Yap, Z. H., Chen, C. D., Sofian-Azirun, M., & Low, V. L. (2018). Pyrethroid resistance in the dengue vector *Aedes aegypti* in Southeast Asia: present situation and prospects for management. *Parasites & vectors*, *11*(1), 332.

Apriyanto, A., & Hardiyanti, S. (2022). Identifikasi Larva Nyamuk Sebagai Vektor Penyakit Di Tempat Penampungan Air Rumah Sakit Umum Daerah Abunawas Kota Kendari. *Jurnal Analis Kesehatan Kendari*, *5*(1), 11-16.

Arfan, O., Kasman, L., & Amry, J. (2024). Survei Kepadatan dan Identifikasi Jentik Nyamuk *Aedes aegypti* Sebagai Vektor RT 005 Pesisir Pantai Wailela Desa Rumah Tiga Kecamatan Teluk Ambon. *CALORY JOURNAL: MEDICAL LABORATORY JOURNAL Учредители: Sekolah Tinggi Ilmu Kesehatan Kesetiakawanan Sosial Indonesia*, *2*(2), 14-26.

Ariani, N. F. (2017). *Perbedaan Kerentanan Vektor Dengue Terhadap Sipermetrin 0, 05% Berdasarkan Topografi* (Doctoral dissertation, Universitas Muhammdiyah Semarang).

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Ariati, J., Perwitasari, D., Marina, R., Shinta, S., Lasut, D., & Nusa, R. (2018). Status kerentanan *Aedes aegypti* terhadap insektisida golongan organofosfat dan piretroid di Indonesia. *Jurnal Ekologi Kesehatan*, *17*(3), 135-145.

Arifin, A. (2013). *Hubungan Faktor Lingkungan Fisik dengan Keberadaan Larva Aedes aegypti di Wilayah Endemis DBD di Kelurahan Kassi-Kassi Kota Makassar 2013* (Doctoral dissertation, Universitas Hassanuddin).

Arifudin, M., Adrial, A., & Rusjdi, S. R. (2016). Survei Larva Nyamuk *Aedes* Vektor Demam Berdarah Dengue di Kelurahan Kuranji Kecamatan Kuranji Kotamadya Padang Provinsi Sumatera Barat. *Jurnal Kesehatan Andalas*, *5*(1).

Arunachalam, N., Tana, S., Espino, F. E., Kittayapong, P., Abeyewickrem, W., Wai, K. T., ... & Petzold, M. (2010). Eco-bio-social determinants of dengue vector breeding: a multicountry study in urban and periurban Asia. *Bulletin of the world Health Organization*, *88*(3), 173-184.

Astuti, R. D. I., Ismawati, I., & Siswanti, L. H. (2019). The Resistance of *Aedes aegypti* to permethrin 0.25% insecticide, malathion 0.8%, and transfluthrin 25% in the Universitas Islam Bandung Tamansari Campus. *Global Medical & Health Communication (GMHC)*, *7*(3), 213-217.

Atikasari, E., & Sulistyorini, L. (2018). Pengendalian vektor nyamuk *Aedes aegypti* di rumah sakit kota surabaya. *The Indonesian Journal of Public Health*, *13*(1), 73.

Awasthi, A. K., Wu, C. H., & Hwang, J. S. (2012). Diving as an anti-predator behavior in mosquito pupae. *Zoological Studies*, *51*(8), 1225-1234.

Azka, A., & Astuti, F. D. (2021). Penggunaan Insektisida Rumah Tangga dan Kerentanan Aedes sp. terhadap Permetrin di Kelurahan Sorosutan Kota Yogyakarta: e Use of Household Insecticides and Susceptibility of Aedes sp. against Permethrin in Sorosutan Yogyakarta. *ASPIRATOR-Journal of Vector-Borne Diseases Studies*, *13*(2), 101-112.

Baharuddin, A., & Rahman, R. (2015). Karakteristik breeding places dan pertumbuhan larva *Aedes aegypti*. *Healthy Tadulako Journal (Jurnal Kesehatan Tadulako)*, *1*(2), 61-71.

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Baltzegar, J., Vella, M., Gunning, C., Vasquez, G., Astete, H., Stell, F., ... & Gould, F. (2021). Rapid evolution of knockdown resistance haplotypes in response to pyrethroid selection in *Aedes aegypti*. *Evolutionary applications*, *14*(8), 2098-2113.

Bar, A., & Andrew, J. (2013). Morphology and morphometry of *Aedes aegypti* larvae. *Annual Review & Research in Biology*, *3*(1), 1-21.

Barrera, R., Amador, M., & Clark, G. G. (2006). Ecological factors influencing *Aedes aegypti* (Diptera: Culicidae) productivity in artificial containers in Salinas, Puerto Rico. *Journal of medical entomology*, *43*(3), 484-492.

Barrera, R., Mackay, A. J., & Amador, M. (2013). A novel autocidal ovitrap for the surveillance and control of *Aedes aegypti*. *Journal of the American Mosquito Control Association*, *29*(3), 293.

Barrera, R., Amador, M., Acevedo, V., Caban, B., Felix, G., & Mackay, A. J. (2014). Use of the CDC autocidal gravid ovitrap to control and prevent outbreaks of *Aedes aegypti* (Diptera: Culicidae). *Journal of medical entomology*, *51*(1), 145-154.

Bharathithasan, M., Kotra, V., Abbas, S. A., & Mathews, A. (2024). Review on biologically active natural insecticides from Malaysian tropical plants against *Aedes aegypti* and *Aedes* albopictus. *Arabian Journal of Chemistry*, *17*(1), 105345.

Boleu, F. I. (2020). Karakteristik Habitat Perkembangbiakan *Aedes aegypti* di Desa Gosoma, Halmahera Utara, Indonesia. *BIOSFER: Jurnal Biologi Dan Pendidikan Biologi*, *5*(1), 31-36.

Bowman, L. R., Donegan, S., & McCall, P. J. (2016). Is dengue vector control deficient in effectiveness or evidence?: Systematic review and meta-analysis. *PLoS neglected tropical diseases*, *10*(3), e0004551.

Braga, I. A., de Castro Gomes, A., Nelson, M., Mello, R. D. C. G., Bergamaschi, D. P., & de Souza, J. M. P. (2000). Comparative study between larval surveys and

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

ovitraps to monitor populations of *Aedes aegypti*. *Revista da Sociedade Brasileira de Medicina Tropical*, *33*(4).

Brogdon, W. G., & McAllister, J. C. (1998). Insecticide resistance and vector control. *Emerging Infectious Diseases*, 4(4), 605.

Brogdon, W., & Chan, A. (2010). Guideline for evaluating insecticide resistance in vectors using the CDC *Bottle bioassay*. *USA: CDC Atlanta*, 2010.

Brown, H. E., Cox, J., Comrie, A. C., & Barrera, R. (2017). Habitat and density of oviposition opportunity influences *Aedes aegypti* (Diptera: Culicidae) flight distance. *Journal of Medical Entomology*, *54*(5), 1385-1389.

Burkett-Cadena, N. D. (2013). Morphology of Adult and Larval Mosquitoes.

Calvez, E., Guillaumot, L., Millet, L., Marie, J., Bossin, H., Rama, V., ... & Dupont-Rouzeyrol, M. (2016). Genetic diversity and phylogeny of *Aedes aegypti*, the main arbovirus vector in the Pacific. *PLoS neglected tropical diseases*, *10*(1).

Carbajo, A. E., Curto, S. I., & Schweigmann, N. J. (2006). Spatial distribution pattern of oviposition in the mosquito *Aedes aegypti* in relation to urbanization in Buenos Aires: southern fringe bionomics of an introduced vector. *Medical and veterinary Entomology*, *20*(2), 209-218.

Cárdenas, R., Cabrera, O. L., Carrillo, M. A., Pineda, A., Ahumada, M. L., Yañez, Y., ... & Kroeger, A. (2025). *Aedes aegypti* control in breeding sites through an insecticidal coating with dual effect: Laboratory trials and safety assessment. *Medical and Veterinary Entomology*, *39*(2), 252-265.

Cavalcante, A. C. P., de Olinda, R. A., Gomes, A., Traxler, J., Smith, M., & Santos, S. (2020). Spatial modelling of the infestation indices of *Aedes aegypti*: an innovative strategy for vector control actions in developing countries. *Parasites & vectors*, *13*(1), 197

CDC. (2010). *Guidelines for evaluating insecticide resistance in vectors using the CDC Bottle bioassay*. Centers for Disease Control and Prevention.

CDC. (2024). *Global Manual for Evaluating Insecticide Resistance Using the CDC Bottle bioassay*. U.S. Department of Health and Human Services.

KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Chadee, D. D., & Corbet, P. S. (1987). Seasonal incidence and diel patterns of oviposition in the field of the mosquito, *Aedes aegypti* (L.)(Diptera: Culicidae) in Trinidad, West Indies: a preliminary study. *Annals of Tropical Medicine & Parasitology*, *81*(2), 151-161.

Chahaya, I., E Tumanggor, W. R., & Depiana Gultom, E. (2024). Effectiveness of Ricinus communis as Natural Larvicide for *Aedes aegypti* Mosquito Larvae in Medan City.

Chahaya, I., Indirawati, S. M., Salmah, U., Bukit, D. S., Hutagalung, D. S., & Saragih, A. A. (2023). Analisis Faktor Lingkungan Rumah Dan Keberadaan Jentik *Aedes aegypti* Di Kelurahan Tebing Tinggi Tahun 2022. *Jurnal Ilmu Kesehatan Masyarakat*, *19*(4), 249-256.

Chareonviriyaphap, T., Akratanakul, P., Nettanomsak, S., & Huntamai, S. (2003). Larval habitats and distribution patterns of *Aedes aegypti* (Linnaeus) and *Aedes* albopictus (Skuse), in Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health*, *34*(3), 529-535.

Che-Mendoza, A., González-Olvera, G., Medina-Barreiro, A., Arisqueta-Chablé, C., Bibiano-Marin, W., Correa-Morales, F., ... & Vazquez-Prokopec, G. M. (2021). Efficacy of targeted indoor residual spraying with the pyrrole insecticide chlorfenapyr against pyrethroid-resistant *Aedes aegypti*. *PLoS neglected tropical diseases*, *15*(10), e0009822.

Chua, K. B., Chua, I. L., Chua, I. E., & Chua, K. H. (2004). Differential preferences of oviposition by *Aedes* mosquitos in man-made containers under field conditions. *The Southeast Asian journal of tropical medicine and public health*, *35*(3), 599-607.

Chuaycharoensuk, T., Juntarajumnong, W., Boonyuan, W., Bangs, M. J., Akratanakul, P., Thammapalo, S., ... & Chareonviriyaphap, T. (2011). Frequency of pyrethroid resistance in *Aedes aegypti* and Aedes albopictus (Diptera: Culicidae) in Thailand. *Journal of Vector Ecology*, *36*(1), 204-212.

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Che-Mendoza, A., Medina-Barreiro, A., Koyoc-Cardeña, E., Uc-Puc, V., Contreras-Perera, Y., Herrera-Bojórquez, J., & Manrique-Saide, P. (2018). House screening with insecticide-treated netting provides sustained reductions in domestic populations of *Aedes aegypti* in Merida, Mexico. *PLoS neglected tropical diseases*, *12*(3), e0006283.

Chen, L., Zhou, K., Shi, J., Zheng, Y., Zhao, X., Du, Q., ... & Feng, X. (2024). Pyrethroid resistance status and co-occurrence of V1016G, F1534C and S989P mutations in the *Aedes aegypti* population from two dengue outbreak counties along the China-Myanmar border. *Parasites & Vectors*, *17*(1), 91.

Christophers, S. R. (1960). *Aedes aegypti* (L.) *The Yellow Fever Mosquito: Its Life History, Bionomics, and Structure*. Cambridge University Press.

Codeço, C. T., Lima, A. W., Araújo, S. C., Lima, J. B. P., Maciel-de-Freitas, R., Honório, N. A., ... & Valle, D. (2015). Surveillance of *Aedes aegypti*: comparison of house index with four alternative traps. *PLoS neglected tropical diseases*, *9*(2), e0003475.

Crava, C. M., Varghese, F. S., Pischedda, E., Halbach, R., Palatini, U., Marconcini, M., ... & Bonizzoni, M. (2021). Population genomics in the arboviral vector *Aedes aegypti* reveals the genomic architecture and evolution of endogenous viral elements. *Molecular ecology*, *30*(7), 1594-1611.

da Cruz Ferreira, D. A., Degener, C. M., de Almeida Marques-Toledo, C., Bendati, M. M., Fetzer, L. O., Teixeira, C. P., & Eiras, Á. E. (2017). Meteorological variables and mosquito monitoring are good predictors for infestation trends of *Aedes aegypti*, the vector of dengue, chikungunya and Zika. *Parasites & vectors*, *10*(1), 78.

da Silva, A. C., & Scalize, P. S. (2023). Environmental Variables Related to *Aedes aegypti* Breeding Spots and the Occurrence of Arbovirus Diseases. *Sustainability*, *15*(10), 8148.

Dalpadado, R., Amarasinghe, D., & Gunathilaka, N. (2022). Water quality characteristics of breeding habitats in relation to the density of *Aedes aegypti*

UNIVERSITAS
GADJAH MADA
**KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN**
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

and *Aedes* albopictus in domestic settings in Gampaha district of Sri Lanka. *Acta tropica*, *229*, 106339.

Dalpadado, R., Amarasinghe, D., Gunathilaka, N., & Ariyarathna, N. (2022). Bionomic aspects of dengue vectors *Aedes aegypti* and *Aedes* albopictus at domestic settings in urban, suburban and rural areas in Gampaha District, Western Province of Sri Lanka. *Parasites & Vectors*, *15*(1), 148.

Daneshi, S., Nikvarz, M., Raesi, R., Kamali, A., Barfar, E., & Hushmandi, K. (2025). Effective Strategies in Disease Control and Prevention: A Systematic Review. *Infectious Disorders-Drug Targets*, *25*(8), E18715265380960.

Davies, T. G. E., Field, L. M., Usherwood, P. N. R., & Williamson, M. S. (2007). DDT, pyrethrins, pyrethroids and insect sodium channels. *IUBMB life*, *59*(3), 151-162.

Dhimal, M., Aryal, K. K., Dhimal, M. L., Gautam, I., Singh, S. P., Bhusal, C. L., & Kuch, U. (2014). Knowledge, attitude and practice regarding dengue fever among the healthy population of highland and lowland communities in central Nepal. *Plos one*, *9*(7), e102028.

Diandara K, P. R., Indra, B., Rusjdi, S. R., & Harahap, W. A. (2023). Deteksi Resistensi Piretroid Secara *Bioassay* dan Mutasi Gen kdr pada *Aedes aegypti* dan *Aedes* albopictus. Majalah Kedokteran Andalas, 46(7), 1228–1239.

Dickson, L. B., *et al*. (2017). Carryover effects of larval exposure to different environmental bacteria drive adult trait variation in a mosquito vector. *Science Advances*, 3(8), e1700585.

Dietz, S., Roman, M., Lauck-Birkel, S., & Maus, C. (2009). Ecotoxicological and environmental profile of the insecticide deltamethrin. Bayer CropScience Journal, 62(December 2009), 221–225.

Djiappi-Tchamen, B., Nana-Ndjangwo, M. S., Nchoutpouen, E., Makoudjou, I., Ngangue-Siewe, I. N., Talipouo, A., ... & Antonio-Nkondjio, C. (2022). *Aedes* Mosquito surveillance using ovitraps, sweep nets, and biogent traps in the city of Yaoundé, Cameroon. *Insects*, *13*(9), 793.

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Doeurk, B., Leng, S., Long, Z., Maquart, P. O., & Boyer, S. (2025). Impact of temperature on survival, development and longevity of *Aedes aegypti* and *Aedes* albopictus (Diptera: Culicidae) in Phnom Penh, Cambodia. *Parasites & Vectors*, *18*(1), 362.

Dorman, D. C., & Beasley, V. R. (1991). Neurotoxicology of pyrethrin and the pyrethroid insecticides. *Veterinary and human toxicology*, *33*(3), 238-243.

Dusfour, I., Vontas, J., David, J. P., Weetman, D., Fonseca, D. M., Corbel, V., ... & Chandre, F. (2019). Management of insecticide resistance in the major *Aedes* vectors of arboviruses: Advances and challenges. *PLoS neglected tropical diseases*, *13*(10), e0007615.

Dusfour, I., Zorrilla, P., Guidez, A., Issaly, J., Girod, R., Guillaumot, L., ... & Strode, C. (2015). Deltamethrin resistance mechanisms in *Aedes aegypti* populations from three French overseas territories worldwide. *PLoS Neglected Tropical Diseases*, *9*(11), e0004226

Dwiningrum, R. (2022). Pengaruh Ekstrak Tanaman Zodia Terhadap Morfologi Internal Nyamuk *Aedes aegypti* Sebagai Vektor Demam Berdarah Dengue. *Jurnal Maternitas Aisyah (JAMAN AISYAH)*, *3*(1), 62-66.

Eisen, L., & Lozano-Fuentes, S. (2009). Use of mapping and spatial and space-time modeling approaches in operational control of *Aedes aegypti* and dengue. *PLoS neglected tropical diseases*, *3*(4), e411.

Elhalwagy, M. E., & Zaki, N. I. (2009). Comparative study on pesticide mixture of organophosphorus and pyrethroid in commercial formulation. *Environmental Toxicology and Pharmacology*, *28*(2), 219-224.

Elizabeth, A. H., & Yudhastuti, R. (2023). Gambaran Kasus Demam Berdarah Dengue (DBD) di Provinsi Jawa Barat Tahun 2016-2020. *Media Gizi Kesmas*, *12*(1), 179-86.

Epelboin, Y., Wang, L., Giai Gianetto, Q., Choumet, V., Gaborit, P., Issaly, J., ... & Dusfour, I. (2021). CYP450 core involvement in multiple resistance strains of

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Aedes aegypti from French Guiana highlighted by proteomics, molecular and biochemical studies. *PLoS One*, *16*(1), e0243992.

Erlanger, T. E., Keiser, J., & Utzinger, J. (2008). Effect of dengue vector control interventions on entomological parameters in developing countries: a systematic review and meta-analysis. *Medical and veterinary entomology*, *22*(3), 203-221.

Facchinelli, L., Badolo, A., & McCall, P. J. (2023). Biology and behaviour of *Aedes aegypti* in the human environment: opportunities for vector control of arbovirus transmission. *Viruses*, *15*(3), 636.

Fahrisal, F., Pinaria, B., & Tarore, D. (2019). Penyebaran Populasi Nyamuk *Aedes aegypti* sebagai Vektor Penyakit Demam Berdarah Dengue di Kota Tidore Kepulauan (Distribution of *Aedes aegypti* Mosquito Population as A Vector of Dengue Fever Disease in Tidore Kepulauan City). *Jurnal Bios Logos*, *9*(1), 28-33

Fatmawati, T., Ngabekti, S., & Priyono, B. (2014). Distribusi Dan Kelimpahan Populasi *Aedes* spp. Di Kelurahan Sukorejo Gunungpati Semarang Berdasarkan Peletakan Ovitrap. *Life Science*, *3*(2).

Faucon, F., *et al*. (2015). Identifying genomic changes associated with insecticide resistance in the dengue mosquito *Aedes aegypti* by deep targeted sequencing. *Genome Research*, 25(9), 1347-1359.

FEHD. (2024). Vector-borne diseases. https://www.fehd.gov.hk/english/pestcontrol/dengue_fever/index.html, diakses pada tanggal 7 Januari 2026.

Francis, S., Saavedra-Rodriguez, K., Perera, R., Paine, M., Black IV, W. C., & Delgoda, R. (2017). Insecticide resistance to permethrin and malathion and associated mechanisms in *Aedes aegypti* mosquitoes from St. Andrew Jamaica. *PloS one*, *12*(6), e0179673.

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Field, L. M., Emyr Davies, T. G., O'reilly, A. O., Williamson, M. S., & Wallace, B. A. (2017). Voltage-gated sodium channels as targets for pyrethroid insecticides. *European biophysics journal*, *46*(7), 675-679.

Ferdousi, F., Yoshimatsu, S., Ma, E., Sohel, N., & Wagatsuma, Y. (2015). Identification of essential containers for *Aedes* larval breeding to control dengue in Dhaka, Bangladesh. *Tropical medicine and health*, *43*(4), 253-264.

Focks, D. A. (2004). A review of entomological sampling methods and indicators for dengue vectors.

Gan, S. J., Leong, Y. Q., bin Barhanuddin, M. F. H., Wong, S. T., Wong, S. F., Mak, J. W., & Ahmad, R. B. (2021). Dengue fever and insecticide resistance in *Aedes* mosquitoes in Southeast Asia: a review. *Parasites & vectors*, *14*(1), 315.

Gandawari, V. T., Kaunang, W. P., & Ratag, B. T. (2018). Hubungan antara variabilitas iklim dengan kejadian Demam Berdarah Dengue di Kota Bitung tahun 2015-2017. *KESMAS: Jurnal Kesehatan Masyarakat Universitas Sam Ratulangi*, *7*(5).

Garjito, T. A., Hidajat, M. C., Kinansi, R. R., Setyaningsih, R., Anggraeni, Y. M., Mujiyanto, ... & Frutos, R. (2020). Stegomyia indices and risk of dengue transmission: a lack of correlation. *Frontiers in Public Health*, *8*, 328.

Garjito, T. A., Widiarti, W., Hidajat, M. C., Handayani, S. W., Mujiyono, M., Prihatin, M. T., ... & Frutos, R. (2021). Homogeneity and possible replacement of populations of the dengue vectors *Aedes aegypti* and Aedes albopictus in Indonesia. *Frontiers in cellular and infection microbiology*, *11*, 705129.

Geraldes, M. A., Giovanetti, M., Cunha, M. V., & Lourenço, J. (2025). The Seasonality and Spatial Landscape of the Historical Climate-Based Suitability of *Aedes*-Borne Viruses in Four Atlantic Archipelagos. *Viruses*, *17*(6), 799.

Getis, A., Morrison, A. C., Gray, K., & Scott, T. W. (2008). Characteristics of the spatial pattern of the dengue vector, *Aedes aegypti*, in Iquitos, Peru. In *Perspectives on Spatial Data Analysis* (pp. 203-225). Berlin, Heidelberg: Springer Berlin Heidelberg.

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Ginting, G. B., Sitorus, A. J. P., Pane, P. Y., & Simangungsong, P. M. J. (2025). Climate change and the life cycle of aedes mosquitoes as vectors of the dengue virus: A scoping review. *Buletin Kedokteran & Kesehatan Prima*, *4*(2), 345-351.

Gionar, Y. R., Rusmiarto, S., Susapto, D., Elyazar, I. R., & Bangs, M. J. (2001). Sumur Sebagai Habitat Yang Penting Untuk Perkembangbiakan Nyamuk *Aedes aegypti* L. *Indonesian Bulletin of Health Research*, *29*(1), 66167.

Govindarajan, M., Mathivanan, T., Elumalai, K., Krishnappa, K., & Anandan, A. (2011). Mosquito larvicidal, ovicidal, and repellent properties of botanical extracts against Anopheles stephensi, *Aedes aegypti*, and Culex quinquefasciatus (Diptera: Culicidae). *Parasitology research*, *109*(2), 353-367.

Gray, L., Florez, S. D., Barreiro, A. M., Vadillo-Sánchez, J., González-Olvera, G., Lenhart, A., ... & Vazquez-Prokopec, G. M. (2018). Experimental evaluation of the impact of household aerosolized insecticides on pyrethroid resistant *Aedes aegypti*. *Scientific reports*, *8*(1), 12535.

Gunara, N. P., Joelianto, E., & Ahmad, I. (2023). Identification of *Aedes aegypti* and *Aedes* albopictus eggs based on image processing and elliptic fourier analysis. *Scientific Reports*, *13*(1), 17395.

Gutierrez, P. M., Antepuesto, A. N., Eugenio, B. A. L., & Santos, M. F. L. (2014). Larvicidal activity of selected plant extracts against the dengue vector *Aedes aegypti* mosquito. *International Research Journal of Biological Sciences*, *3*(4), 23-32.

Gloria-Soria, A., Ayala, D., Bheecarry, A., Calderon-Arguedas, O., Chadee, D. D., Chiappero, M., ... & Powell, J. R. (2016). Global genetic diversity of *Aedes aegypti*. *Molecular ecology*, *25*(21), 5377-5395.

Gubler, D. J. (2010). The global threat of emergent/re-emergent vector-borne diseases. *Vector Biology, Ecology and Control*, 39-62.

Guo, Y., Zhou, J., Zhao, Y., Deng, J., Su, X., Tang, J., ... & Chen, X. G. (2023). CRISPR/Cas9-mediated F1534S substitution in the voltage-gated sodium

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

channel reveals its necessity and sufficiency for deltamethrin resistance in Aedes albopictus. *Journal of Pest Science*, *96*(3), 1173-1186.

Gyawali, N., Russell, T. L., Burkot, T. R., & Devine, G. J. (2025). A morphological identification key to the mosquito disease vectors of the Pacific. *Austral Entomology*, *64*(1), e70003.

Ha, Y. R., Yeom, E., Ryu, J., & Lee, S. J. (2017). Three-dimensional structures of the tracheal systems of Anopheles sinensis and *Aedes* togoi pupae. *Scientific reports*, *7*(1), 44490.

Haidy Massa, M., Ould Lemrabott, M. A., Gomez, N., Ould Mohamed Salem Boukhary, A., & Briolant, S. (2025). Insecticide Resistance Status of *Aedes aegypti* Adults and Larvae in Nouakchott, Mauritania. *Insects*, *16*(3), 288.

Hamid, P. H., Ninditya, V. I., Prastowo, J., Haryanto, A., Taubert, A., & Hermosilla, C. (2018). Current status of *Aedes aegypti* insecticide resistance development from Banjarmasin, Kalimantan, Indonesia. *BioMed Research International*, *2018*(1), 1735358.

Hamid, P. H., Prastowo, J., Ghiffari, A., Taubert, A., & Hermosilla, C. (2017). *Aedes aegypti* resistance development to commonly used insecticides in Jakarta, Indonesia. *PLoS One*, *12*(12), e0189680.

Handayani, D. (2023). Uji Resistensi Nyamuk *Aedes aegypti* terhadap Cypermethrin 0,05% di Pelabuhan Sungai Duku Pekanbaru. Jurnal Kesehatan Komunitas, 9(November), 624–629.

Harrington, L. C., Fleisher, A., Ruiz-Moreno, D., Vermeylen, F., Wa, C. V., Poulson, R. L., ... & Scott, T. W. (2014). Heterogeneous feeding patterns of the dengue vector, *Aedes aegypti*, on individual human hosts in rural Thailand. *PLoS neglected tropical diseases*, *8*(8), e3048.

Harrison, J. F., Waters, J. S., Cease, A. J., VandenBrooks, J. M., Callier, V., Klok, C. J., ... & Socha, J. J. (2018). "How Insects Breathe: Insights from Comparative Physiology and Biomechanics." *Annual Review of Entomology*, 63, 303-325.

UNIVERSITAS
GADJAH MADA
**KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN**
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Haziqah-Rashid, A., Chen, C. D., Lau, K. W., Low, V. L., Sofian-Azirun, M., Suana, I. W., ... & Azidah, A. A. (2019). Monitoring insecticide resistance profiles of *Aedes aegypti* (Diptera: Culicidae) in the Sunda Islands of Indonesia based on diagnostic doses of larvicides. *Journal of medical entomology*, *56*(2), 514-518.

Hasna, K. A., Jannat, K. N. E., & Begum, M. (2023). Morphometric evaluation of *Aedes aegypti* (Linnaeus, 1762) and Culex quiquefasciatus (Say, 1823) (Diptera: Nematocera: Culicidae) of different metamorphosis stages. *Bangladesh Journal of Zoology*, *51*(3), 329-343.

He, S., Mas' ulun, M. J., Ramadhany, A. K., Hanafie, A. N., Alfiani, R. F., Husnah, S. E., ... & Mahestari, A. N. (2023). Effectiveness of the *Aedes aegypti* mosquito vector control program in Southeast Asia-a systematic review.

Hemingway, J., & Ranson, H. (2000). Insecticide resistance in insect vectors of human disease. *Annual Review of Entomology*, 45(1), 371-391.

Hemme, R. R., Thomas, C. L., Chadee, D. D., & Severson, D. W. (2010). Influence of urban landscapes on population dynamics in a short-distance migrant mosquito: evidence for the dengue vector *Aedes aegypti*. *PLoS neglected tropical diseases*, *4*(3), e634.

Herath, J. M. K., De Silva, W. P. P., Weeraratne, T. C., & Karunaratne, S. P. (2024). Breeding habitat preference of the dengue vector mosquitoes *Aedes aegypti* and *Aedes* albopictus from urban, semiurban, and rural areas in Kurunegala District, Sri Lanka. *Journal of Tropical Medicine*, *2024*(1), 4123543.

Hernandez, J. R., & Pietrantonio, P. V. (2025). Pyrethroid resistance in *Aedes aegypti*: genetic mechanisms worldwide, and recommendations for effective vector control. *Parasites & Vectors*, *18*(1), 409.

Hidayah, N., Suhartono, E., Hidayat, A., & Mahmudah, P. S. (2025). Logistic Model of *Aedes aegypti* Larval Habitats Based on Modifiable Household Environmental Factors in Banjar, Indonesia. *Journal of Environmental Health*, *17*(4).

KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Hidayat, M. T., Pradana, D. S., Rozy, M. F., & Setyaji, I. D. (2024). Strategi Efektif Dalam Pengendalian Nyamuk, *Fogging* Dan Pemberian Obat Abate. *Jurnal Pengabdian Indonesia*, *1*(2), 8-13.

Hidayati, L., Hadi, U. K., & Soviana, S. (2017). Pemanfaatan ovitrap dalam pengukuran populasi *Aedes* sp. dan penentuan kondisi rumah. *Jurnal Entomologi Indonesia*, *14*(3), 126-126.

Hiwat, H., Doerdjan, K., Kerpens, M., Samjhawan, A., Sardjoe, P., & Soekhoe, T. (2013). Importance of domestic water containers as *Aedes aegypti* breeding sites in Suriname; implications for dengue control. *Academic Journal of Suriname*, *4*(1), 403-407.

Hossain, M. M., Liu, J., & Richardson, J. R. (2017). Pyrethroid insecticides directly activate microglia through interaction with voltage-gated sodium channels. *Toxicological Sciences*, *155*(1), 112-123.

Hotijah & Aprilia, D. 2023. *Identifikasi Nyamuk Aedes aegypti di Asrama Stikes Ngudia Husada Madura*.

Hoyochi, I., Padonou, G. G., Tokponnon, T. F., Konkon, A. K., Zoungbédji, D. M., Salako, A. S., ... & Akogbéto, M. C. (2025). Influence of the physicochemical characteristics of mosquito breeding sites in domestic environments on the distributions of Anopheles, *Aedes* and Culex mosquitoes in Benin. *Tropical Medicine and Health*, *53*(1), 100.

Hua, A. Y. Z. (2018). *Efficacy Assessment of Commercial Mosquito Coils and Associated Pyrethroid Resistance Mechanisms in Aedes aegypti from Indonesia* (Master's thesis, University of Malaya (Malaysia)).

Ilyas, M., Setyaningrum, E., Mumtazah, D. F., & Busman, H. (2025). Tempat Perindukan dan Kepadatan Larva *Aedes* spp. sebagai Indikator Risiko Penularan Demam Berdarah di Tempat Wisata Bandar Lampung. *Bioma: Jurnal Biologi dan Pembelajaran Biologi*, *10*(1), 39-50.

Ismah, Z., Purnama, T. B., Wulandari, D. R., Sazkiah, E. R., & Ashar, Y. K. (2021). Faktor Risiko Demam Berdarah di Negara Tropis: Risk Factors of Dengue

UNIVERSITAS GADJAH MADA
**KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN**
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Hemorrhagic Fever in Tropical Countries. *ASPIRATOR-Journal of Vector-Borne Diseases Studies*, *13*(2), 147-158.

Jannah, A. M., Susilawaty, A., Satrianegara, M. F., & Saleh, M. (2021). Hubungan Lingkungan Fisik dengan Keberadaan Jentik *Aedes* sp. di Kelurahan Balleanging Kecamatan Balocci Kabupaten Pangkep. *HIGIENE: Jurnal Kesehatan Lingkungan*, *7*(2), 65-71.

Jayakody, D., Ganehiarachchi, M., & Gunathilaka, N. (2025). Impact of human blood groups on reproductive fitness and offspring morphometrics of dengue vector *Aedes aegypti* (Diptera: Culicidae): a laboratory-based study. *BMC Research Notes*, *18*, 269.

Kalimuddin, S., Chia, P. Y., Low, J. G., & Ooi, E. E. (2025). Dengue and severe dengue. *Clinical Microbiology Reviews*, *38*(4), e00244-24.

Kemenkes RI. (2018). *Panduan Monitoring Resistensi Vektor Terhadap Insektisida. Direktorat Pencegahan Dan Pengendalian Penyakit Tular Vektor Dan Zoonotik Direktorat Jenderal Pencegahan Dan Pengendalian Penyakit*. Jakarta: Kemenkes.

Kemenkes RI. (2023). *Profil Kesehatan Indonesia 2022*. Kementerian Kesehatan Republik Indonesia. Jakarta.

Kirstein, O. D., Culquichicon, C., Che-Mendoza, A., Navarrete-Carballo, J., Wang, J., Bibiano-Marin, W., ... & Vazquez-Prokopec, G. M. (2023). Targeted indoor residual insecticide applications shift *Aedes aegypti* age structure and arbovirus transmission potential. *Scientific Reports*, *13*(1), 21271.

Komara, E., Wahyuningsih, N. E., & Setiani, O. (2024). Hubungan Cuaca dan Kepadatan Penduduk dengan Kejadian DBD: Literature Review. *Media Publikasi Promosi Kesehatan Indonesia (MPPKI)*, *7*(4), 864-870.

Kona, M. P., Kamaraju, R., Donnelly, M. J., Bhatt, R. M., Nanda, N., Chourasia, M. K., ... & Pandey, V. (2018). Characterization and monitoring of deltamethrin-resistance in Anopheles culicifacies in the presence of a long-lasting insecticide-treated net intervention. *Malaria Journal*, *17*(1), 414.

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Koou, S. Y., Chong, C. S., Vythilingam, I., Lee, C. Y., & Ng, L. C. (2014). Insecticide resistance and its underlying mechanisms in field populations of *Aedes aegypti* adults (Diptera: Culicidae) in Singapore. *Parasites & vectors*, *7*(1), 471.

Kramer, L. D., & Ciota, A. T. (2015). Dissecting vectorial capacity for mosquito-borne viruses. *Current opinion in virology*, *15*, 112-118.

Kraemer, M. U., Sinka, M. E., Duda, K. A., Mylne, A. Q., Shearer, F. M., Barker, C. M., ... & Hay, S. I. (2015). The global distribution of the arbovirus vectors *Aedes aegypti* and Ae. albopictus. *elife*, *4*, e08347.

Kroth, N., Cozzer, G. D., De Carvalho, G., Cassol, A. S., Breaux, J., Lutinski, J. A., ... & Albeny-Simões, D. (2019). Oviposition preferences of the mosquito *Aedes aegypti* Linnaeus, 1762 (Culicidae): an urban environment *bioassay*. *Bulletin of Entomological Research*, *109*(6), 762-770.

Kumar, A., Bhaskar, A., Chandra, S., Sasmal, D., Mukhopadhyay, K. M., & Sharma, N. (2015). Mechanism of deltamethrin induced immunotoxicity: Current and future perspectives. *Receptors & Clinical Investigation*, *2*.

Kumar, S., Thomas, A., & Pillai, M. K. K. (2011). Deltamethrin: Promising mosquito control agent against adult stage of *Aedes aegypti* L. *Asian Pacific Journal of Tropical Medicine*, *4*(6), 430-435.

Kumawat, R., Singh, K. V., Bansal, S. K., & Singh, H. (2014). Use of different coloured ovitraps in the surveillance of *Aedes* mosquitoes in an arid-urban area of western Rajasthan, India. *Journal of vector borne diseases*, *51*(4), 320-326.

Kurniawati, R. D., Sutriyawan, A., & Rahmawati, S. R. (2020). Analisis pengetahuan dan motivasi pemakaian ovitrap sebagai upaya pengendalian jentik Nyamuk *Aedes* Aegepty. *Jurnal Ilmu Kesehatan Masyarakat*, *9*(04), 248-253.

Kushartanti, R., & Fitriana, N. G. (2025). Integrating self-awareness surveys and ovitrap monitoring to enhance dengue vector control: A community-based experimental study in Bulusan Village, Semarang City. *Community Research of Epidemiology (CORE)*, 91-100.

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Kusmintarsih, E. S., Nuryanto, A., & Mohammed, M. A. (2025). DNA barcoding and phylogenetic relationship for *Aedes aegypti* on Java Island, Indonesia. *One Health Bulletin*, 10-4103.

Kusuma, W. D. (2018). Gambaran Bionomik Nyamuk *Aedes aegypti* Di Kelurahan Perumnas Way Kandis Kota Bandar Lampung. *Ruwa Jurai: Jurnal Kesehatan Lingkungan*, *12*(2), 95-101.

Kusumawathie, P. H. D., & Fernando, W. P. (2003). Breeding habitats of *Aedes aegypti* Linnaeus and Acalbopictus Skuse in a dengue transmission area in Kandy, Sri Lanka. *Ceylon Journal of Medical Science*, *46*(2).

Lambrechts, L., Scott, T. W., & Gubler, D. J. (2010). Consequences of the expanding global distribution of *Aedes albopictus* for dengue virus transmission. *PLoS neglected tropical diseases*, *4*(5), e646.

Lambrechts, L., *et al*. (2015). Impact of daily temperature fluctuations on dengue virus transmission by *Aedes aegypti*. *Proceedings of the National Academy of Sciences*, 112(28), 8784-8789.

Lase, A., Putriana, A., Aisyah, S., & Lase, A. (2024). Analisis Sanitasi Lingkungan dan Pengendalian Nyamuk di Kota Tarutung. *TOBA: Journal of Tourism, Hospitality, and Destination*, *3*(1), 26-32.

Laskowski, D. A. (2002). Physical and chemical properties of pyrethroids. *Reviews of Environmental Contamination and Toxicology: Continuation of Residue Reviews*, 49-170.

Leggewie, M., Scherer, C., Altinli, M., Gestuveo, R. J., Sreenu, V. B., Fuss, J., Vazeille, M., Mousson, L., Badusche, M., Kohl, A., Failloux, A. B., & Schnettler, E. (2023). The *Aedes aegypti* RNA interference response against Zika virus in the context of co-infection with dengue and chikungunya viruses. *PLoS neglected tropical diseases*, *17*(7), e0011456.

Lema, Y. N., Almet, J., & Wuri, D. A. (2021). Gambaran siklus hidup nyamuk Aedes sp. di Kota Kupang. *Jurnal Veteriner Nusantara*, *4*(1), 2-2.

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Lenakoly, T. Y., Wurjanto, M. A., Hestiningsih, R., Martini, M., Yuliawati, S., & Diyana, S. (2023). Kerentanan Vektor Anopheles Sp terhadap Deltametrin 0, 05% di Kabupaten Seram Maluku. *HIGEIA (Journal of Public Health Research and Development)*, *7*(4), 503-513.

Lenhart, A., Chan, A., Vizcaino, L. and Brogdon, W.G. 2011. *Global Manual for Evaluating Insecticide Resistance Using the CDC Bottle bioassay*. U.S. Department of Health and Human Services. USA.

Lesmana, S. D., Maryanti, E., Susanty, E., Afandi, D., Harmas, W., Octaviani, D. N., … Mislindawati, M. (2021). Organophosphate Resistance in *Aedes aegypti*: Study from Dengue Hemorrhagic Fever Endemic Subdistrict in Riau, Indonesia. Reports of Biochemistry and Molecular Biology, 10(4), 589–596.

Lestari, A. (2019). *Identifikasi Jentik Nyamuk Aedes aegypti Pada Kamar Mandi Di Dusun Plosogerang Jombang (Studi Di Dusun Plosogerang, Desa Plosogeneng, Kecamatan Jombang, Kabupaten Jombang)* (Doctoral dissertation, Stikes Insan Cendekia Medika Jombang).

Lima, E. P., Goulart, M. O. F., & Rolim Neto, M. L. (2015). Meta-analysis of studies on chemical, physical and biological agents in the control of *Aedes aegypti*. *BMC public health*, *15*(1), 858.

Lin, M. H., Lin, J. F., Yu, M. C., Wu, S. N., Wu, C. L., & Cho, H. Y. (2022). Characterization in potent modulation on voltage-gated Na+ current exerted by deltamethrin, a pyrethroid insecticide. *International journal of molecular sciences*, *23*(23), 14733.

Liu, K., Ma, S., Zhang, K., Gao, R., Jin, H., Cao, P., ... & Wu, S. (2023). Functional characterization of knockdown resistance mutation L1014S in the german cockroach, Blattella germanica (Linnaeus). *Journal of Agricultural and Food Chemistry*, *71*(6), 2734-2744.

Liu, N. (2015). Insecticide resistance in mosquitoes: impact, mechanisms, and research directions. *Annual review of entomology*, *60*, 537-559.

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Low, G. K., Jiee, S. F., Lim, S. H., Omosumwen, O. F., & Shanmuganathan, S. (2025). The Effectiveness of Dengue Vector Control: A Meta-Review. *Tropical Medicine & International Health*, *30*(10), 1069-1086.

Lopez-Monroy, B., Gutierrez-Rodriguez, S. M., Villanueva-Segura, O. K., Ponce-Garcia, G., Morales-Forcada, F., Alvarez, L. C., & Flores, A. E. (2018). Frequency and intensity of pyrethroid resistance through the CDC *Bottle bioassay* and their association with the frequency of kdr mutations in *Aedes aegypti* (Diptera: Culicidae) from Mexico. *Pest management science*, *74*(9), 2176-2184.

Lu, Q., Sun, Y., Ares, I., Anadón, A., Martínez, M., Martínez-Larrañaga, M. R., ... & Martínez, M. A. (2019). Deltamethrin toxicity: A review of oxidative stress and metabolism. *Environmental research*, *170*, 260-281.

Lusiyana, N., Fitiah, S., Putri, A. A., Rahmi, M. T., & Ilham, D. M. (2019). Survei entomologi, kerentanan *Aedes aegypti* terhadap insektisida organofosfat, dan identifikasi gen VGSC di Dusun Malangrejo, Sleman, Yogyakarta. *Aspirator-Journal of Vector-borne Disease Studies*, *11*(1), 37-44.

Majeed, S., Akram, W., Sufyan, M., Abbasi, A., Riaz, S., Faisal, S., ... & Kucher, O. D. (2025). Climate Change: A Major Factor in the Spread of *Aedes aegypti* (Diptera: Culicidae) and Its Associated Dengue Virus. *Insects*, *16*(5), 513.

Makkiah, M., Salaki, C. L., & Assa, B. (2020). Efektivitas ekstrak serai wangi (Cimbopogon nardus L.) sebagai larvasida nyamuk *Aedes aegypti*. *Jurnal Bios Logos*, *10*(1), 1-6.

Mamane, A., Baldi, I., Tessier, J. F., Raherison, C., & Bouvier, G. (2015). Occupational exposure to pesticides and respiratory health. *European Respiratory Review*, *24*(136), 306-319.

Mancini, M. V., Ant, T. H., Herd, C. S., Martinez, J., Murdochy, S. M., Gingell, D. D., ... & Sinkins, S. P. (2021). High temperature cycles result in maternal transmission and dengue infection differences between Wolbachia strains in *Aedes aegypti*. *MBio*, *12*(6), e00250-21.

UNIVERSITAS
GADJAH MADA
**KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN**
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Manzano, P., García, O. V., Malusín, J., Villamar, J., Quijano, M., Viteri, R., ... & Orellana-Manzano, A. (2020). Larvicidal activity of ethanolic extract of Azadirachta indica against *Aedes aegypti* larvae. *Revista Facultad Nacional de Agronomía Medellín*, *73*(3), 9315-9320.larvasi

Marcombe, S., *et al*. (2012). Insecticide resistance in the dengue vector *Aedes aegypti* from Martinique: Distribution, mechanisms and relations with environmental factors. *PLoS ONE*, 7(2), e30989.

Marcantonio, M., Reyes, T., & Barker, C. M. (2019). Quantifying *Aedes aegypti* dispersal in space and time: a modeling approach. *Ecosphere*, *10*(12), e02977.

Marianti. (2015). Pengaruh granul ekstrak daun sirih (*Piper betle* linn) Terhadap Mortalitas Larva *Aedes aegypti*. Undergraduate thesis, Fakultas Kedokteran UNISSULA. Semarang

Marinho, R. A., Beserra, E. B., Bezerra-Gusmão, M. A., Porto, V. D. S., Olinda, R. A., & Dos Santos, C. A. (2016). Effects of temperature on the life cycle, expansion, and dispersion of *Aedes aegypti* (Diptera: Culicidae) in three cities in Paraiba, Brazil. *Journal of Vector Ecology*, *41*(1), 1-10.

Martins, A. J., & Valle, D. (2012). The pyrethroid knockdown resistance. *Insecticides-Basic and Other Applications*, *17*, 38.

Marza, R. F., & Shodikin, S. (2016). Karakteristik tempat perindukan dan kepadatan jentik nyamuk *Aedes aegypti*. *Menara Ilmu*, *10*(73), 185-194.

Mejía-Jurado, E., Echeverry-Cárdenas, E., & Aguirre-Obando, O. A. (2024). Potential current and future distribution for *Aedes aegypti* and *Aedes* albopictus in Colombia: important disease vectors. *Biological Invasions*, *26*(7), 2119-2137.

Menda, G., Nitzany, E. I., Shamble, P. S., Wells, A., Harrington, L. C., Miles, R. N., & Hoy, R. R. (2019). The long and short of hearing in the mosquito *Aedes aegypti*. *Current Biology*, *29*(4), 709-714.

Montgomery, M. J., Harwood, J. F., Yougang, A. P., Wilson-Bahun, T. A., Tedjou, A. N., Keumeni, C. R., ... & Kilpatrick, A. M. (2025). The effects of urbanization, temperature, and rainfall on *Aedes aegypti* and *Aedes* albopictus mosquito

UNIVERSITAS
GADJAH MADA
**KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN**
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

abundance across a broad latitudinal gradient in Central Africa. *Parasites & Vectors*, *18*(1), 135.

Moyes, C. L., Vontas, J., Martins, A. J., Ng, L. C., Koou, S. Y., Dusfour, I., ... & Weetman, D. (2017). Contemporary status of insecticide resistance in the major *Aedes* vectors of arboviruses infecting humans. *PLoS neglected tropical diseases*, *11*(7), e0005625.

Mundim-Pombo, A. P. M., Carvalho, H. J. C. D., Rodrigues Ribeiro, R., León, M., Maria, D. A., & Miglino, M. A. (2021). *Aedes aegypti*: egg morphology and embryonic development. *Parasites & vectors*, *14*(1), 531.

Nadifah, F., Muhajir, N. F., Arisandi, D., & Lobo, M. D. O. (2016). Identifikasi larva nyamuk pada tempat penampungan air di Padukuhan Dero Condong Catur Kabupaten Sleman. *Jurnal Kesehatan Masyarakat Andalas*, *10*(2), 172-178.

Naing, C., Htet, N. H., Tung, W. S., Aung, H. H., & Whittaker, M. A. (2023). Facilitators and barriers to engaging communities in health service research on dengue control in Indo-Pacific region: a systematic review. *BMC Public Health*, *23*(1), 1924.

Nakase, T., Giovanetti, M., Obolski, U., & Lourenço, J. (2023). Global transmission suitability maps for dengue virus transmitted by *Aedes aegypti* from 1981 to 2019. *Scientific Data*, *10*(1), 275.

Nardin, N., Fa'al Santri, N., & Ashafil, R. (2019). Identifikasi Jentik Nyamuk *Aedes aegypti* Pada Bak Mandi di Toilet Kampus V Universitas Indonesia Timur. *Jurnal Media Laboran*, *9*(2), 13-17.

Nawarathne, M. P., & Dharmarathne, C. (2024). Control of dengue larvae of *Aedes aegypti* and *Aedes* albopictus using the larvicidal bioactive compounds in different plant extracts and plant extract-mediated nanoparticles. *Tropical Medicine and Health*, *52*(1), 95.

Nelson, M. J., Pant, C. P., Self, L. S., & Usman, S. (1976). Observations on the breeding habitats of *Aedes aegypti* (L.) in Jakarta, Indonesia. *The Southeast Asian journal of tropical medicine and public health*, *7*(3), 424-429.

KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Ngingo, B. L., Mboera, L. E., Chengula, A., Machelle, I., Makange, M. R., Msolla, M., ... & Misinzo, G. (2022). *Aedes aegypti* abundance, larval indices and risk for dengue virus transmission in Kinondoni district, Tanzania. *Tropical Medicine and Health*, *50*(1), 1.

Norris, E. J., & Bloomquist, J. R. (2022). Nutritional status significantly affects toxicological endpoints in the CDC *Bottle bioassay*. *Pest Management Science*, *78*(2), 743-748.

Novelo, M., Dutra, H. L., Metz, H. C., Jones, M. J., Sigle, L. T., Frentiu, F. D., Allen, S. L., Chenoweth, S. F., & McGraw, E. A. (2023). Dengue and chikungunya virus loads in the mosquito *Aedes aegypti* are determined by distinct genetic architectures. *PLoS pathogens*, *19*(4), e1011307.

Nuraeni, M. (2024). Analysis of *Aedes aegypti* Larval Density on The Potential Transmission of Den

Nurweni, S. (2025). *Analisis Spasial Status Kerentanan Aedes aegypti Linn Terhadap Insektisida Organofosfat & Piretroid di Daerah Sporadis dan Endemis Dengue Kabupaten Magetan* (Doctoral dissertation, Universitas Gadjah Mada). gue Fever. *Eduvest-Journal of Universal Studies*, *4*(3), 1130-1137.

Ocampo, C. B., Salazar-Terreros, M. J., Mina, N. J., McAllister, J., & Brogdon, W. (2011). Insecticide resistance status of *Aedes aegypti* in 10 localities in Colombia. *Acta tropica*, *118*(1), 37-44.

Olivia, D. N., & Sekarputri, A. L. (2025). Pengaruh Faktor Cuaca (Curah Hujan, Kelembapan, dan Suhu) Terhadap Kejadian DBD. *Health & Medical Sciences*, *2*(3), 16-16

Oliveira, J. G., Netto, S. A., Francisco, E. O., Vieira, C. P., Variza, P. F., Iser, B. P. M., Lima-Camara, T. N., Lorenz, C., & Prophiro, J. S. (2023). *Aedes aegypti* in Southern Brazil: Spatiotemporal Distribution Dynamics and Association with Climate and Environmental Factors. *Tropical medicine and infectious disease*, *8*(2), 77.

KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Olmo, R. P., Todjro, Y. M., Aguiar, E. R., de Almeida, J. P. P., Ferreira, F. V., Armache, J. N., ... & Marques, J. T. (2023). Mosquito vector competence for dengue is modulated by insect-specific viruses. *Nature microbiology*, *8*(1), 135-149.

Oriwarda, E., Hayatie, L., & Djalalluddin, D. (2021). Literature Review: Hubungan Pengetahuan dan Perilaku Masyarakat tentang PSN dengan Keberadaan Jentik *Aedes aegypti*. *Homeostasis*, *4*(1), 189-202.

Ouédraogo, N. (2023). Anti-inflammatory Potential of Glycoside Flavonoids from Pterocarpus erinaceus Poir.(Fabaceae) Leaves.

Oz, E., & Cetin, H. (2022). Synergistic effect of piperonyl butoxide on the toxicity of alpha-cypermethrin and deltamethrin against pyrethroid-resistant german cockroach Blattella germanica (Blattodea: Ectobiidae) strains in Turkey. International Journal of Tropical Insect Science, 42(4), 3017–3022.

Palatini, U., Miesen, P., Carballar-Lejarazu, R., Ometto, L., Rizzo, E., Tu, Z., ... & Bonizzoni, M. (2017). Comparative genomics shows that viral integrations are abundant and express piRNAs in the arboviral vectors *Aedes aegypti* and Aedes albopictus. *BMC genomics*, *18*(1), 512.

Parker, C. (2020). Collection and rearing of container mosquitoes and a 24-h addition to the CDC *Bottle bioassay*. *Journal of Insect Science*, *20*(6), 13.

Parra, M. C. P., Lorenz, C., Dibo, M. R., de Aguiar Milhim, B. H. G., Guirado, M. M., Nogueira, M. L., & Chiaravalloti-Neto, F. (2022). Association between densities of adult and immature stages of *Aedes aegypti* mosquitoes in space and time: implications for vector surveillance. *Parasites & Vectors*, *15*(1), 133.

Permadi, I. G. W. S., Ambarita, L. P., & Yahya, Y. (2018). Identifikasi Nyamuk Dewasa pada Buah Kelapa di Kelurahan Kemelak Kabupaten Ogan Komering Ulu. *Bioma: Jurnal Ilmiah Biologi*, *7*(2), 153-160.

Powell, J. R., & Tabachnick, W. J. (2013). *"History of Domestication and Spread of Aedes aegypti: A Review.*" Memórias do Instituto Oswaldo Cruz, 108(Suppl 1), 11-17.

KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Prasad, P., Lata, S., Gupta, S. K., Kumar, P., Saxena, R., Arya, D. K., & Singh, H. (2023). *Aedes aegypti* container preference for oviposition and its possible implications for dengue vector surveillance in Delhi, India. *Epidemiology and Health*, *45*, e2023073.

Pratama, I. E., Santjaka, A., & Widyanto, A. (2017). Kohort Evaluasi Nyamuk Dewasa Setelah Pelaksanaan *Fogging* Focus di Desa Sidamulih Kecamatan Rawalo Kabupaten Banyumas Tahun 2016. *Buletin Keslingmas*, *36*(2), 123-129.

Pratiwi, N., Hasmiwati, H., & Hendriati, H. (2020). Status Resistensi Nyamuk *Aedes aegypti* dari Wilayah Kerja Puskesmas Salido terhadap Malathion 5% dan Alfa-sipermethrin 0,025%. *Jurnal Ilmu Kesehatan Indonesia*, *1*(3), 329-335.

Praulins, G., Murphy-Fegan, A., Gillespie, J., Mechan, F., Gleave, K., & Lees, R. (2024). Unpacking WHO and CDC *Bottle bioassay* Methods: A Comprehensive Literature Review and Protocol Analysis Revealing Key Outcome Predictors. *Gates Open Research*, *8*, 56.

Rahman, R. U., Souza, B., Uddin, I., Carrara, L., Brito, L. P., Costa, M. M., ... & Martins, A. J. (2021). Insecticide resistance and underlying targets-site and metabolic mechanisms in *Aedes aegypti* and *Aedes* albopictus from Lahore, Pakistan. *Scientific Reports*, *11*(1), 4555.

Ranson, H., & Lissenden, N. (2016). Insecticide resistance in African Anopheles mosquitoes: a worsening situation that needs urgent action to maintain malaria control. *Trends in parasitology*, *32*(3), 187-196.

Rao, M. R. K. (2020). Lethal efficacy of phytochemicals as sustainable sources of insecticidal formulations derived from the leaf extracts of Indian medicinal plants to control Dengue and Zika vector, *Aedes aegypti* (Dipetra: Culicide). *Int. Res. J. Environ. Sci*, *9*, 44-54.

Rasli, R., Cheong, Y. L., Che Ibrahim, M. K., Farahininajua Fikri, S. F., Norzali, R. N., Nazarudin, N. A., ... & Lee, H. L. (2021). Insecticide resistance in dengue vectors from hotspots in Selangor, Malaysia. *PLoS Neglected Tropical Diseases*, *15*(3), e0009205.

UNIVERSITAS
GADJAH MADA
**KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN**
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Refai, Hermansyah, H., Adhe, D. 2013. Uji Efektifitas Biolarvasida Ekstrak Daun Papaya (Carica papaa L.) *Terhadap Kematian Larva Instar III Nyamuk Aedes aegypti*. *Jurnal Kesehatan.*1(11): p. 91—99.

Reinhold, J. M., Lazzari, C. R., & Lahondère, C. (2018). Effects of the environmental temperature on *Aedes aegypti* and *Aedes* albopictus mosquitoes: a review. *Insects*, *9*(4), 158.

Ridha, M. R. (2018). Indikator entomologi dan status resistensi vektor Demam Berdarah Dengue (*Aedes aegypti* L) terhadap beberapa golongan insektisida di Kota Banjarbaru.

Ridha, M. R., Rahayu, N., Rosvita, N. A., & Setyaningtyas, D. E. (2013). Hubungan kondisi lingkungan dan kontainer dengan keberadaan jentik nyamuk *Aedes aegypti* di daerah endemis demam berdarah dengue di Kota Banjarbaru. *Jurnal Buski*, *4*(3), 21439.

Ridha, M. R., Yudhastuti, R., Notobroto, H. B., Hidajat, M. C., Diyanah, K. C., Jassey, B., & Rahmah, G. M. (2025). A systematic review of insecticide resistance in *Aedes aegypti* (Diptera: Culicidae) and implications for dengue control in Indonesia. *Veterinary World*, *18*(3), 658.

Rigby, L. M., Johnson, B. J., Peatey, C. L., Beebe, N. W., & Devine, G. J. (2021). The impact of sublethal permethrin exposure on susceptible and resistant genotypes of the urban disease vector *Aedes aegypti*. Pest Management Science, 77(7), 3450–3457.

Rodrigues, M. D. M., Marques, G. R. A. M., Serpa, L. L. N., Arduino, M. D. B., Voltolini, J. C., Barbosa, G. L., ... & de Lima, V. L. C. (2015). Density of *Aedes aegypti* and *Aedes* albopictus and its association with number of residents and meteorological variables in the home environment of dengue endemic area, São Paulo, Brazil. *Parasites & Vectors*, *8*(1), 115.

Rodríguez, M. M., Crespo, A., Hurtado, D., Fuentes, I., Rey, J., & Bisset, J. A. (2017). Diagnostic doses of insecticides for adult *Aedes aegypti* to assess insecticide

KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

resistance in Cuba. *Journal of the American Mosquito Control Association*, *33*(2), 142-144.

Rose, N. H., Sylla, M., Badolo, A., Lutomiah, J., Ayala, D., Aribodor, O. B., ... & McBride, C. S. (2020). Climate and urbanization drive mosquito preference for humans. *Current Biology*, *30*(18), 3570-3579.

Ryan, S. J., *et al*. (2019). Global expansion and redistribution of *Aedes*-borne virus transmission risk with climate change. *PLoS Neglected Tropical Diseases*, 13(3), e0007213.

Salomao, C., Nacima, A., Cuamba, L., Gujral, L., Amiel, O., Baltazar, C., ... & Gudo, E. S. (2017). Epidemiology, clinical features and risk factors for human rabies and animal bites during an outbreak of rabies in Maputo and Matola cities, Mozambique, 2014: Implications for public health interventions for rabies control. *PLOS Neglected Tropical Diseases*, *11*(7), e0005787.

Sasmita, H. I., Neoh, K. B., Yusmalinar, S., Anggraeni, T., Chang, N. T., Bong, L. J., ... & Tu, W. C. (2021). Ovitrap surveillance of dengue vector mosquitoes in bandung city, west java province, Indonesia. *PLoS neglected tropical diseases*, *15*(10), e0009896.

Sathantriphop, S., Paeporn, P., Ya-Umphan, P., Mukkhun, P., Thanispong, K., Chansang, C., ... & Tainchum, K. (2020). Behavioral action of deltamethrin and cypermethrin in pyrethroid-resistant *Aedes aegypti* (Diptera: Culicidae): implications for control strategies in Thailand. *Journal of Medical Entomology*, *57*(4), 1157-1167.

Satoto, T. B. T., Diptyanusa, A., Setiawan, Y. D., & Alvira, N. (2017). Environmental factors of the home affect the density of *Aedes aegypti* (Diptera: Culicidae). *Jurnal Kedokteran YARSI*, *25*(1), 041-051.

Scott, T. W., & Morrison, A. C. (2010). Vector Dynamics and Transmission of Dengue Virus: Implications for Dengue Surveillance and Prevention Strategies. Cur Top Microbial Immunol, 338(1), 115–128.

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Severson, D. W., & Behura, S. K. (2016). Genome investigations of vector competence in *Aedes aegypti* to inform novel arbovirus disease control approaches. *Insects*, *7*(4), 58.

Shafiq, M., Abubakar, M., Riaz, M., & Shad, S. A. (2024). Development of alphacypermethrin resistance and its effect on biological parameters of yellow fever mosquito, *Aedes aegypti* (L.) (Diptera: Culicidae). Parasitology Research, 123(1), 1–9. https://doi.org/10.1007/s00436-023-08051-7

Shirani, M., Akbari-Adergani, B., Jazi, M. B., & Akbari, A. (2019). Green ultrasound assisted magnetic nanofluid-based liquid phase microextraction coupled with gas chromatography-mass spectrometry for determination of permethrin, deltamethrin, and cypermethrin residues. *Microchimica Acta*, *186*(10), 674.

Silalahi, C. N., Tu, W. C., Chang, N. T., Singham, G. V., Ahmad, I., & Neoh, K. B. (2022). Insecticide Resistance Profiles and Synergism of Field *Aedes aegypti* from Indonesia. *PLoS neglected tropical diseases*, *16*(6).

Silvério, M. R. S., Espindola, L. S., Lopes, N. P., & Vieira, P. C. (2020). Plant natural products for the control of *Aedes aegypti*: The main vector of important arboviruses. *Molecules*, *25*(15), 3484.

Sissoko, F., Junnila, A., Traore, M. M., Traore, S. F., Doumbia, S., Dembele, S. M., ... & Müller, G. C. (2019). Frequent sugar feeding behavior by *Aedes aegypti* in Bamako, Mali makes them ideal candidates for control with attractive toxic sugar baits (ATSB). *PloS one*, *14*(6), e0214170.

Sittichok, S., Passara, H., Moungthipmalai, T., Sinthusiri, J., Murata, K., & Soonwera, M. (2025). Synergistic larvicidal and pupicidal effects of monoterpene mixtures against *Aedes aegypti* with low toxicity to guppies and honeybees. *Insects*, *16*(7), 738.

Sihombing, G. F. (2014). Hubungan curah hujan, suhu udara, kelembaban udara, kepadatan penduduk dan luas lahan pemukiman dengan kejadian demam berdarah dengue di Kota Malang periode tahun 2002-2011. *Lingkungan dan Keselamatan Kerja*, *3*(1), 14459.

KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Smith, L. B., Kasai, S., & Scott, J. G. (2016). Pyrethroid resistance in *Aedes aegypti* and *Aedes* albopictus: Important mosquito vectors of human diseases. *Pesticide biochemistry and physiology*, *133*, 1-12.

Sobhia, M. E., Ghosh, K., Singh, A., Sul, K., Singh, M., Kumar, R., ... & Donempudi, S. (2019). A multi-perspective review on dengue research. *Current Drug Targets*, *20*(15), 1550-1562.

Soderlund, D. M. (2012). Molecular mechanisms of pyrethroid insecticide neurotoxicity: recent advances. *Archives of toxicology*, *86*(2), 165-181.

Sofiana, D., & Wuliandari, J. R. (2023). Survei nyamuk *Aedes aegypti* menggunakan ovitrap di Kelurahan Mersi dan Desa Ledug. *Sainteks*, *20*(1), 49-59.

Soria, C., Crocco, L. B., Grech, M. G., Stewart-Ibarra, A., & Almirón, W. R. (2025). Habitat characteristics that favour the presence of *Aedes aegypti* (Diptera: Culicidae) in households in the city of Córdoba, a temperate area of Argentina. *Parasites & Vectors*, *18*(1), 487.

Sowilem, M. M., Kamal, H. A., & Khater, E. I. (2013). Life table characteristics of *Aedes aegypti* (Diptera: Culicidae) from Saudi Arabia.

Srisawat, R., Komalamisra, N., Eshita, Y., Zheng, M., Ono, K., Itoh, T. Q., ... & Rongsriyam, Y. (2010). Point mutations in domain II of the voltage-gated sodium channel gene in deltamethrin-resistant *Aedes aegypti* (Diptera: Culicidae). *Applied Entomology and Zoology*, *45*(2), 275-282.

Stenhouse, S. A., Plernsub, S., Yanola, J., Lumjuan, N., Dantrakool, A., Choochote, W., & Somboon, P. (2013). Detection of the V1016G mutation in the voltage-gated sodium channel gene of *Aedes aegypti* (Diptera: Culicidae) by allele-specific PCR assay, and its distribution and effect on deltamethrin resistance in Thailand. *Parasites & vectors*, *6*(1), 253.

Stoops, C. A., Kim, M. S., Mahabir, S., Chong, S. T., Cinkovich, S. S., & Carder, J. B. (2023). CDC *Bottle bioassay*s for detection of insecticide resistance in Culex pipiens, *Aedes* albopictus, and *Aedes* koreicus collected on US Army Garrisons,

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Republic of Korea. *Journal of the American Mosquito Control Association*, *39*(3), 208-211.

Strand, M. R. (2018). "The Insect Cellular Immune Response." Insect Science, 25(1), 1-15.

Sulaeman, U., Abbas, H. H., Istiqamah, U., Saleh, M., & Rusdiyah, R. (2024). Survey Indeks Entomologi dan Identifikasi Larva *Aedes aegypti* di Kelurahan Pampang Kecamatan Panakukkang Kota Makassar. *Jurnal Pengabdian Masyarakat Sains dan Teknologi*, *3*(2), 63-69.

Sumitha, M. K., Kalimuthu, M., Senthil, M. K., Paramasivan, R., Kumar, A., & Gupta, B. (2023). Status of insecticide resistance in the dengue vector *Aedes aegypti* in India: A review. *Journal of Vector Borne Diseases*, *60*(2), 116-124.

Sunaryo, S., & Widiastuti, D. (2020). Penggunaan Insektisida Rumah Tangga untuk Mencegah dan Mengendalikan *Aedes aegypti* di Permukiman di Provinsi Sumatera Utara. Balaba: Jurnal Litbang Pengendalian Penyakit Bersumber Binatang Banjarnegara, 16(1), 105–112.

Sunbanu, A. H., Almet, J., & Wuri, D. A. (2021). Uji Resistensi Nyamuk Culex sp. Terhadap Insektisida Golongan Piretroid (Permethrin 0, 25%) Di Kota Kupang. *Jurnal Veteriner Nusantara*, *4*(1), 6-6.

Supriyadi, S., Sudiarto, S., & Widiyanto, B. (2013). The Effect of Modified Ovitrap toward *Aedes aegypti* Mosquito Larvae Trapped. *Jurnal Riset Kesehatan*, *2*(2), 347-357.

Supriyono, S., Soviana, S., Musyaffa, M. F., Novianto, D., & Hadi, U. K. (2023). *Morphological characteristic of dengue vectors Aedes aegypti and Ae. albopictus (Family: Culicidae) using advanced light and scanning electron microscope*. *Biodiversitas*, 24, 894–900.

Sutanti, Y. S., Handoko, Y., Swity, A. F., Laelaem, S. E., & Manurung, A. D. (2023). Description of Community Knowledge, Attitudes and Behavior Regarding Dengue Hemorrhagic Fever in Namasina Village, Central Maluku Regency. *Jurnal MedScientiae*, *2*(3).

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Syazana, N., & Porusia, M. (2022). Kajian Literatur Efektivitas Biolarvasida Ekstrak Daun Sirsak Terhadap Jentik Nyamuk *Aedes aegypti*. *Environmental Occupational Health and Safety Journal*, *2*(2), 203-220.

Thongwat, D., & Bunchu, N. (2015). Susceptibility to temephos, permethrin and deltamethrin of *Aedes aegypti* (Diptera: Culicidae) from Muang district, Phitsanulok Province, Thailand. *Asian Pacific Journal of Tropical Medicine*, *8*(1), 14-18.

Trewin, B. J., Pagendam, D. E., Zalucki, M. P., Darbro, J. M., Devine, G. J., Jansen, C. C., & Schellhorn, N. A. (2020). Urban landscape features influence the movement and distribution of the Australian container-inhabiting mosquito vectors *Aedes aegypti* (Diptera: Culicidae) and Aedes notoscriptus (Diptera: Culicidae). *Journal of medical entomology*, *57*(2), 443-453.

Triwahyuni, T., Husna, I., Putri, D. F., & Medina, M. (2020). Hubungan Kondisi Lingkungan Rumah dengan Keberadaan Jentik *Ae. aegypti*. *Jurnal Ilmiah Kesehatan Sandi Husada*, *9*(1), 365-371.

Tun-Lin, W., Burkot, T. R., & Kay, B. H. (2000). Effects of temperature and larval diet on development rates and survival of the dengue vector *Aedes aegypti* in north Queensland, Australia. *Medical and veterinary entomology*, *14*(1), 31-37.

Utami, W. W., Ahmad, A. R., & Malik, A. (2016). Uji aktivitas larvasida ekstrak daun jarak kepyar (Ricinus communis L.) terhadap larva nyamuk *Aedes aegypti*. *Jurnal Fitofarmaka Indonesia*, *3*(1), 141-145.

Vais, H., Williamson, M. S., Goodson, S. J., Devonshire, A. L., Warmke, J. W., Usherwood, P. N., & Cohen, C. J. (2000). Activation of Drosophila sodium channels promotes modification by deltamethrin: reductions in affinity caused by *knock-down* resistance mutations. *The Journal of general physiology*, *115*(3), 305-318.

Vatandoost, H., Abai, M. R., Akbari, M., Raeisi, A., Yousefi, H., Sheikhi, S., & Bagheri, A. (2019). Comparison of CDC *Bottle bioassay* with WHO standard method for assessment susceptibility level of malaria vector, Anopheles

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

stephensi to three imagicides. Journal of Arthropod-Borne Diseases, 13(1), 17–26.

Vazquez-Prokopec, G. M., Medina-Barreiro, A., Che-Mendoza, A., Dzul-Manzanilla, F., Correa-Morales, F., Guillermo-May, G., ... & Manrique-Saide, P. (2017). Deltamethrin resistance in *Aedes aegypti* results in treatment failure in Merida, Mexico. *PLoS neglected tropical diseases*, *11*(6), e0005656.

Veronika, E., Simatupang, M. M., Irfandi, A., & Nitami, M. (2023). Survei Jentik *Aedes* Sp, Pengetahuan dan Perilaku 3M Plus Masyarakat di Provinsi Jawa Barat. *Surya Medika: Jurnal Ilmiah Ilmu Keperawatan dan Ilmu Kesehatan Masyarakat*, *18*(1), 55-62.

Vontas, J., Kioulos, E., Pavlidi, N., Morou, E., Della Torre, A., & Ranson, H. (2012). Insecticide resistance in the major dengue vectors *Aedes* albopictus and *Aedes aegypti*. *Pesticide Biochemistry and Physiology*, *104*(2), 126-131.

Walker, K. R., Joy, T. K., Ellers-Kirk, C., & Ramberg, F. B. (2011). Human and environmental factors affecting *Aedes aegypti* distribution in an arid urban environment. *Journal of the American Mosquito Control Association*, *27*(2), 135-141.

Wei, L., FernÁndez-Santos, N. A., Hamer, G. L., Lara-RamÍrez, E. E., & RodrÍguez-PÉrez, M. A. (2023). Daytime resting activity of *Aedes aegypti* and Culex quinquefasciatus populations in Northern Mexico. *Journal of the American Mosquito Control Association*, *39*(3), 157-167.

WHO. (2016). *Aedes aegypti* and *Aedes* albopictus habitat and risk mapping. *World Health Organization Technical Report*.

World Health Organization. (2016). Monitoring and managing insecticide resistance in *Aedes* mosquito populations: interim guidance for entomologists.

WHO. (2021). Global report on insecticide resistance in malaria vectors: 2010–2019.

Wong, J., Stoddard, S. T., Astete, H., Morrison, A. C., & Scott, T. W. (2011). Oviposition site selection by the dengue vector *Aedes aegypti* and its implications for dengue control. *PLoS neglected tropical diseases*, *5*(4), e1015.

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN, KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

World Health Organization (WHO). (2016). *Guidelines for dengue vector control*. Geneva: WHO Press.

Widiarti, W., Heriyanto, B., Boewono, D. T., & Mujiono, U. W. (2012). Peta resistensi vektor demam berdarah dengue *Aedes aegypti* terhadap insektisida kelompok organofosfat, karbamat dan pyrethroid di Propinsi Jawa tengah dan Daerah Istimewa Yogyakarta. *Buletin Penelitian Kesehatan*, *39*(4).

Widiastuti, D., & Ikawati, B. (2016). Resistensi malathion dan aktivitas enzim esterase pada populasi nyamuk *Aedes aegypti* di Kabupaten Pekalongan. *Balaba: Jurnal Litbang Pengendalian Penyakit Bersumber Binatang Banjarnegara*, 61-70.

Widiastuti, D., *et al*. (2019). Resistance status of *Aedes aegypti* to temephos in Jakarta, Indonesia. *Journal of Medical Entomology*, 56(3), 728-733.

Widiastuti, D., Sunaryo, S., Agustiningsih, A., Wijayanti, S. P. M., & Wijayanti, N. (2021, May). Insecticide resistance of *Aedes aegypti* to Deltamethrin and its genetic variability in Jambi Province. In *AIP Conference Proceedings* (Vol. 2353, No. 1, p. 030026). AIP Publishing LLC.

Widyastuti, E., Rosa, E., Pratami, G. D., & Kanedi, M. (2023). Jumlah dan Kemelimpahan Telur *Aedes* sp. di Ovitrap dan Kerentanan *Aedes aegypti* Terhadap Abate. *Bioma: Jurnal Biologi dan Pembelajaran Biologi*, *8*(1).

Widyastuti, D. A., & Rahayu, P. (2018, May). Karakteristik tempat perindukan *Aedes* sp. Dan Potensi penularan demam berdarah dengue di kelurahan karangtempel kecamatan semarang timur kota semarang. In *Prosiding SNPBS (Seminar Nasional Pendidikan Biologi dan Saintek)* (pp. 307-312).

Wijayanti, S. P. M., Anandari, D., & Maghfiroh, A. F. A. (2017). Pengukuran *ovitrap index* (OI) sebagai gambaran kepadatan nyamuk di daerah endemis demam berdarah dengue (DBD) kabupaten Banyumas. *Kesmas Indonesia*, *9*(1), 56-63.

World Health Organization (WHO). (2020). *Dengue and Severe Dengue: Key Facts.* Diakses dari https://www.who.int/news-room/fact-sheets/detail/dengue-and-severe-dengue.

UNIVERSITAS GADJAH MADA
KARAKTER PERINDUKAN DAN STATUS RESISTENSI Aedes aegypti (Linnaeus, 1762) DARI KELURAHAN GIWANGAN,
KOTA YOGYAKARTA TERHADAP DELTAMETHRIN
Nelly Astiana Napitupulu, Dr. Dra. Raden Roro Upiek Ngesti Wibawaning Astuti, B.Sc., DAP&E. M.Biomed.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Wong, L. P., Rajandra, A., Abd Jamil, J., AbuBakar, S., Lin, Y., & Lee, H. Y. (2023, February). Effectiveness of dengue awareness calendar on indigenous population: Impact on knowledge, belief and practice. In *Healthcare* (Vol. 11, No. 5, p. 637). MDPI.

Wright, E., Carrillo, M. A., Matamoros, D., Sanchez, R. C., Yañez, J., Di Lorenzo, G., ... & Kroeger, A. (2023). Applicability of the Mexican ovitrap system for *Aedes* vector surveillance in Colombia. *Pathogens and Global Health*, *117*(6), 554-564.

Wu, H. H., Wang, C. Y., Teng, H. J., Lin, C., Lu, L. C., Jian, S. W., ... & Wu, H. S. (2013). A dengue vector surveillance by human population-stratified ovitrap survey for *Aedes* (Diptera: Culicidae) adult and egg collections in high dengue-risk areas of Taiwan. *Journal of medical entomology*, *50*(2), 261-269.

Wu, Y., Wu, J., Wu, Q., Cai, H., Hu, J., Lin, Z., & Liao, R. (2025). The making of a dangerous vector: factors shaping the vector competence of Aedes mosquitoes. *Frontiers in Cellular and Infection Microbiology*, *15*, 1718737.

Wuliandari, J. R., Mulia, D. S., & Susanto, S. (2023). Surveilans *Aedes aegypti* Menggunakan Ovitrap di Desa Endemis Demam Berdarah Kabupaten Banyumas. *Bioscientist: Jurnal Ilmiah Biologi*, *11*(2), 1420-1434.

Wuwungan, A. A., Lumanauw, S. J., Posangi, J., & Pinontoan, O. R. (2013). Preferensi nyamuk *Aedes aegypti* pada beberapa media air. *Jurnal Biomedik: JBM*, *5*(1).

Yahya, Y., & Perdani, R. (2024). Pemberdayaan Kader Jumantik dan Masyarakat dalam Pencegahan DBD Melalui Edukasi, Survei Entomologis, dan Pelatihan Pembuatan Ovitrap di Kelurahan Pemurus Baru. *Jurnal Pengabdian Masyarakat Progresif Humanis Brainstorming*, *7*(4), 1064-1072.

Yulianti, E., & Abdurrivai, A. (2020). Perilaku bertelur dan siklus hidup nyamuk *Aedes aegypti* pada berbagai media air (studi literatur). *Sulolipu: Media Komunikasi Sivitas Akademika dan Masyarakat*, *20*(2), 227-239.

Zulfa, R., Lo, W. C., Cheng, P. C., Martini, M., & Chuang, T. W. (2022). Updating the insecticide resistance status of *Aedes aegypti* and *Aedes* albopictus in Asia: a