Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus
Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Adebayo-Gege, A. (2022). "Anti-atherogenic and cardio-protective properties of sweet melon (Cucumis melo. L. Inodorus) seed extract on high fat diet induced obesity in male wistar rats." *BMC Complementary Medicine and Therapies*, 22(1), 1-10. doi:10.1186/s12906-022-03793-w.

Adebayo-Gege, A. (2023). "Protective functions of methanol extract of Cucumis melo (L. INODOROUS) seeds on Pyloric ligation induced gastric ulceration in male Wistar rats." *Magna Scientia Advanced Research and Reviews*, 8(1), 76-83. doi:10.30574/msarr.2023.8.1.0076

Adithya Yudistira. (2017). Uji Aktivitas Anti Kanker Payudara Ekstrak Daun Pinang Yaki (Areca Vestiaria Giseke.) Terhadap Sel Kanker Payudara T47d. *jjrnal ilmiah farmasi. 6(4), 275-281.*

Al-Dimassi, S., Abou-Antoun, T., and El- Sibai M. 2014. Cancer Cell Resistance Mechanisms: A Mini Review. *Clin Transl Oncol*, 16: 511–6.

Al-Sayed, H.M.A. & Ahmed, A.R. 2013. Utilizationof watermelon rinds and sharlyn melon peels asa natural source of dietary fiber and antioxidantsin cake. *Annals of Agricultural Sciences*, 58(1):83-95.

Almeida, L., Vaz-da-Silva, M., Falcão, A., Soares, E., Costa, R., Loureiro, A. I., Fernandes-Lopes, C., Rocha, J. F., Nunes, T., Wright, L., & Soares-da-Silva, P. (2009). Pharmacokinetic and safety profile of trans-resveratrol in a rising multiple-dose study in healthy volunteers. *Molecular nutrition & food research*, *53 Suppl 1*, S7–S15. https://doi.org/10.1002/mnfr.200800177

Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus
Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Amorim, E. P., et al. (2016). "Morphological diversity and identification of accessions of melon." *African Journal of Agricultural Research*, 11(11), 1001-1010. doi:10.5897/ajar2016.11211.

Anto., & Supriyadi. (2015). Identifikasi senyawa yang berkorelasi terhadap rasa pahit selama perkembangan fase buah melon (Cucumis melo L.) Kultivar Gama Melon Parfum. Tesis. Fakultas Biologi Universitas Gadjah Mada: Yogyakarta.

Askari V, Shamlou S, Mostafaie A, Khaleqi S. (2019). Ethyl acetate fraction of *Teucrium polium* extract abolishes human umbilical vein endothelial cells (HUVEC) tubulogenesis in collagen bed through suppression of cell proliferation/VEGF secretion. *Iran J Allergy Asthma Immunol*;18(3):281-8. doi: 10.18502/ijaai.v18i3.1121

Astuti. (2007). *Budidaya Melon*. Jakarta selatan: AgroMedia Pustaka.

Bikfalvi, A., Klein, S., Pintucci, G., & Rifkin, D. B. (1997). Biological roles of fibroblast growth factor-2. *Endocrine Reviews, 18*(1), 26–45.

Borba FKSL, Costa EVL, Polli VAB, Coelho DS, Maraschin M, (2017) Pro-angiogenic Activity Assay of Chondroitin Sulfate and Glucosamine Sulfate on Vascular Network of Mouse and of Chick Embryo Chorioallantoic Membrane. *J Glycobiol* 6: 129.

Burggren, W., & Rojas Antich, M. (2020). Angiogenesis in the Avian Embryo Chorioallantoic Membrane: A Perspective on Research Trends and a Case Study on Toxicant Vascular Effects. *Journal of Cardiovascular Development and Disease*, *7*(4), 56. https://doi.org/10.3390/jcdd7040056

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Cai, Y., Li, L., Shao, C., Chen, Y., & Wang, Z. (2024). Therapeutic Strategies for Angiogenesis Based on Endothelial Cell Epigenetics. *Journal of cardiovascular translational research*, *17*(4), 816–827. https://doi.org/10.1007/s12265-024-10485-y

Carmeliet, P. (2003). Angiogenesis in health and disease. *Nature Medicine*, 9(6), 653-66.

Chabner, B.A. and Roberts Jr, T.G. (2006). Timeline: Chemotherapy and the War on Cancer. Nat Rev Cancer, 25(1): 65–72.

Chen, L. & Kang, Y.H. (2013). In vitro inhibitoryeffect of oriental melon (Cucumis melo L. var.makuwa Makino) seed on key enzyme linked totype 2 diabetes: assessment of anti-diabeticpotential of functional food. Journal of Func-tional Foods, 5(2): 981-986.

Chen, L., Wang, S., Feng, Y., Zhang, J., Du, Y., Zhang, J., Ongeval, C. V., Ni, Y., & Li, Y. (2021). Utilisation of Chick Embryo Chorioallantoic Membrane as a Model Platform for Imaging-Navigated *Biomedical Research. Cells*, *10*(2), 463. https://doi.org/10.3390/cells10020463

Choi JY, Jang YS, Min SY, Song JY. (2011). Overexpression of MMP- 9 and HIF-1alpha in breast cancer cells under hypoxic conditions. *J Breast Cancer*;14(2):88-95. doi: 10.4048/ jbc.2011.14.2.88.

Chui, A., Zhang, Q., Dai, Q., & Shi, S. H. (2020). Oxidative stress regulates progenitor behavior and cortical neurogenesis. *Development (Cambridge, England)*, *147*(5), dev184150. https://doi.org/10.1242/dev.184150

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Cimpean, A.M., Ribatti, D. & Raica, M. (2008). The chick embryo chorioallantoic membrane as a model to study tumor metastasis. *Angiogenesis* 11, 311–319.https://doi.org/10.1007/s10456-008-9117-1

Ciolofan, A., Creţu, O. M., Mogoantă, S. Ş., & Ciucă, E. M. (2017). The tyrosine kinase inhibitors effects on metastatic tumor graft in the chick chorioallantoic membrane assay. *Romanian journal of morphology and embryology = Revue roumaine de morphologie et embryologie*, *58*(4), 1257–1262.

Coulombre, A. J., Steinberg, S. N., & Coulombre, J. L. (1963). The role of intraocular pressure in the development of the chick eye: V. pigmented epithelium. *Investigative Ophthalmology & Visual Science*, *2*(1), 83-89.

Cummings, M.C., Simpson, P.T., Reid, L.E., Jayanthan, J., Skerman, J., Song, S., McCart Reed, A.E., Kutasovic, J.R., Morey, A.L., Marquart, L., O'Rourke, P., & Lakhani, S.R. (2014). Metastatic Progression of Breast Cancer: Insights from 50 Years of Autopsies. *Journal of Pathology*, 232(1): 23–31.

D. H., Denison, M. S., Tachibana, H., & Yamada, K. (2002). Relationship between estrogen receptor-binding and estrogenic activities of environmental estrogens and suppression by flavonoids. *Bioscience, Biotechnology and Biochemistry*, 66(7), 1479–1487. https://doi.org/10.1271/bbb.66.1479

D´ ABADIA, P.L. (2022). The role of enzymes in the angiogenic activity of *Hancornia speciosa* latex. *Bioscience Journal*. 38, e38086. https://doi.org/10.14393/BJ-v38n0a2022-61092

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Dakeng, S., Duangmano, S., Jiratchariyakul, W., U-Pratya, Y., Bögler, O., & Patmasiriwat, P. (2012). Inhibition of Wnt signaling by cucurbitacin B in breast cancer cells: Reduction of Wnt-associated proteins and reduced translocation of galectin-3-mediated β-catenin to the nucleus. Journal of Cellular Biochemistry, 113(1), 49–60. https://doi.org/10.1002/jcb.23326

Daryono, B. S. and Maryanto, D. S. (2018). *Keanekaragaman dan Potensi Sumber Daya Genetik Melon. UGM Press.*

Daryono, B. S., & Maryanto, S. D. (2017). Diversity and Potential Genetic Resources of Melons. Gadjah Mada University Press, Yogyakarta.[Indonesian]

De Jong, W., (2001). *Kanker, Apa itu? Pengobatan, Harapan Hidup dan Dukungan Keluarga*, diterjemahkan oleh Astoeti Suharto H., Penerbit Arcan, Jakarta, 159-174.

Dempsey, E. C., Newton, A. C., Mochly-Rosen, D., Fields, A. P., Reyland, M. E., Insel, P. A., & Messing, R. O. (2000). Protein kinase C isozymes and the regulation of diverse cell responses. *American journal of physiology. Lung cellular and molecular physiology*, *279*(3), L429–L438. https://doi.org/10.1152/ajplung.2000.279.3.L429

Depkes RI. (2009). Pedoman Penemuan & Penatalaksanaan Penyakit Kanker Tertentu di Komunitas. Jakarta: Departemen Kesehatan.

Deryugina, E. I., & Quigley, J. P. (2008). Chick embryo chorioallantoic membrane model systems to study and visualize human tumor cell metastasis. *Histochemistry and Cell Biology*, 130(6), 1119–1130.

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Deryugina, E.I., Quigley, J.P., (2008). Chick embryo chorioallantoic membrane model systems to study and visualize human tumor cell metastasis. Histochem. Cell Biol. 130, 1119–1130. https://doi.org/10.1007/s00418-008-0536-2

Domenico Ribatti, (2017) The chick embryo chorioallantoic membrane (CAM) assay, Reproductive Toxicology, Volume 70, Pages 97-101, ISSN 0890-6238, https://doi.org/10.1016/j.reprotox.2016.11.004.

Dow, J. K., & deVere White, R. W. (2000). Fibroblast growth factor 2: Its structure and property, paracrine function, tumor angiogenesis, and prostate-related mitogenic and oncogenic functions. *Urology, 55*(6), 800–806. https://doi.org/10.1016/S0090-4295(00)00457-X

Dunn, B.E. (2024). Intra-allantoic injection of calcium promotes hatching of chick embryos grown in shell-less culture. Journal of Experimental Zoology Part A: Ecological and Integrative Physiology, 341(5), 544–552. Available at: https://doi.org/10.1002/jez.2805.

Dwi Maryanto, Sigit & Ranis, Rini & Daryono, B.. (2015). Stability Phenotypic Characters and The Scent of Gama Melon Parfum Cultivar. IPTEK Journal of Proceedings Series. 10.12962/j23546026.y2014i1.286.

Eichhorn, M.E., Kleespies A., Angele M.K., Jauch K.W., dan Bruns C.J., (2007). Angiogenesis in cancer: molecular mechanisms clinical impact, Langenbecks Arch Surg (2007) 392:371-379.

Experimental Cell Research, 328 (2) (2014), pp. 314-324, 10.1016/j.yexcr.2014.06.010

Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus
Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Fadli Agus Triansyah, Sandi Jembar Wijaya, Rini Melani, Erna Dwi Jayanti, & Nurhuda Teapon. (2023). Bakti Sosial Untuk Meningkatkan Motivasi Pasien Penderita Kanker di Rumah Pejuang Kanker Ambu. *Cakrawala: Jurnal Pengabdian Masyarakat Global*, *2*(2), 101–109. https://doi.org/10.30640/cakrawala.v2i2.1002

Fitriani, F., Husmimi, H., Masyitha, D., & Akmal, M. (2021). Histologis Perkembangan Embrio Ayam pada Masa Inkubasi Satu sampai Tujuh Hari. Jurnal Agripet, 21(1).

Foster, J. S., Henley, D. C., Ahamed, S., & Wimalasena, J. (2001). Estrogens and cell-cycle regulation in breast cancer. Trends in Endocrinology and Metabolism, 12(7), 320–327. https://doi.org/10.1016/S1043-2760(01)00436-2

Gao, Y., et al. (2015). "RNA-Seq Transcriptome Profiling Reveals Differentially Expressed Genes Involved in Sex Expression in Melon." Crop Science, 55(5), 1-12. doi:10.2135/cropsci2014.06.0444.

Gilbert, S. F., Opitz, J. M., & Raff, R. A. (1996). Resynthesizing evolutionary and developmental biology. *Developmental biology*, *173*(2), 357-372

Goodfellow, B.S., Mikat, E.M., 2016. A stain for the simultaneous demonstration of collagen, muscle, and elastic elements in mammalian tissue. *Lab. Med.* 19, 243–244.

Hamburger, V., & Hamilton, H. L. (1951). A series of normal stages in the development of the chick embryo. *Journal of morphology*, *88*(1), 49–92.

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Hartini, S., Winarsih, B. D., & Nugroho, E. G. Z. (2020). Peningkatan Pengetahuan Perawat Untuk Perawatan Anak Penderita Kanker. Jurnal Pengabdian Kesehatan, 3(2), 141–149. https://doi.org/10.31596/jpk.v3i2.87

Hasbullah, U. H. A., Supriyadi. and Daryono, B. S. (2019). Aroma Volatile Compounds Profile of Melon (Cucumis melo L.) cv. Gama Melon Parfum. IOP Conference Series: *Earth and Environmental Science*, 292:012027.

Hasbullah, U.H.A., & Supriyadi. (2014). Profil senyawa volatil selama fase perkembangan dan senyawa kunci aroma buah melon (Cucumis melo L.) kultivar Gama Melon Parfum. Tesis. Fakultas Biologi Universitas Gadjah Mada: Yogyakarta.

Hasibuan, F.E. (2019). Mikrostruktur Jaringan Tumor dan Ekspresi p53 pada Tikus Model Kanker Payudara yang Diberi Esktrak Metanol Daun Biwa (*Eriobotrya japonica* (Thunb.) Lindl.). *Tesis*. USU. Medan.

Hassan Rasouli, Sharham Parvaneh, Azadeh Mahnam, Mohsen Rastegari-Pouyani, Zohreh Hoseinkhani, Kamran Mansouri. (2017). Anti-angiogenic potential of trypsin inhibitor purified from Cucumis melo seeds: Homology modeling and molecular docking perspective, International Journal of Biological Macromolecules, Volume 96, Pages 118-128, ISSN 0141-8130, https://doi.org/10.1016/j.ijbiomac.2016.12.027.

Hoseinkhani, Z., Norooznezhad, F., Rastegari-Pouyani, M., & Mansouri, K. (2020). Medicinal Plants Extracts with Antiangiogenic Activity: Where Is the Link?. *Advanced pharmaceutical bulletin*, *10*(3), 370–378. https://doi.org/10.34172/apb.2020.045

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Huang, S., Li, R., Zhang, Z., Li, L., Gu, X., Fan, W., Lucas, W. J., Wang, X., Xie, B., Ni, P., Ren, Y., Zhu, H., Li, J., Lin, K., Jin, W., Fei, Z., Li, G., Staub, J., Kilian, A., … Li, S. (2009). The genome of the cucumber, *Cucumis sativus* L. *Nature Genetics*, *41*(12), 1275–1281. https://doi.org/10.1038/ng.475

Hugo M. Pereira, Ruben B. Freitas, Marino J. Maciel, Sara Pimenta, Marta Costa, Fátima Baltazar, Carlos A. Silva, José H. Correia. (2024). The chick chorioallantoic membrane assay as an in vivo model for colon tumor analysis with optical coherence tomography, Expert Systems with Applications, Volume 255, Part A, 124611, ISSN 0957-4174, https://doi.org/10.1016/j.eswa.2024.124611.

Ibrahim, M.E. & El-Masry, H.G. (2016). Phenolic contentand antioxidant activity of cantaloupe (Cucumismelo var. cantalupensis) and food application. *International Journal of Nutrition andFood Sciences*, 5(1): 16-24.

International Agency for Research on Cancer. (2022). *Global Cancer Observatory: Cancer today*. World Health Organization.

Isyraqi, N.A., Rahmawati, D. dan Sastyarina, Y., (2020). Proceeding of Mulawarman Pharmaceuticals Conferences.

Janani Rajasekar, Madan Kumar Perumal, Baskaran Vallikannan, (2019). A critical review on anti-angiogenic property of phytochemicals, *The Journal of Nutritional Biochemistry*, Volume 71, Pages 1-15, ISSN 0955-2863, https://doi.org/10.1016/j.jnutbio.2019.04.006

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Jayaprakasam, B., Seeram, N. P., & Nair, M. G. (2003). Anticancer and antiinflammatory activities of cucurbitacins from Cucurbita andreana. *Cancer Letters*, 189(1), 11–16. https://doi.org/10.1016/S0304-3835(02)00497-4

Jih, YJ., Lien, WH., Tsai, WC. (2001). Distinct regulation of genes by bFGF and VEGF-A in endothelial cells.*Angiogenesis* 4, 313–321. https://doi.org/10.1023/A:1016080321956

K. Harper, A. Yatsyna, M. Charbonneau, K.BrochuGaudreau, A. Perreault, C.Jeldres, P.P. McDonald, C.M. Dubois. (2021). The Chicken Chorioallantoic Membrane Tumor Assay as a Relevant In Vivo Model to Study the Impact of Hypoxia on Tumor Progression and Metastasis Cancers, 13 (5), p. 1093, 10.3390/cancers13051093

Kementrian Kesehatan Republik Indonesia. (2024). Rencana kanker nasional 2024-2034 : Stategi Indonesia dalam melawan kanker.

Kennedy, D. C., Coen, B., Wheatley, A. M., & McCullagh, K. J. A. (2022). Microvascular Experimentation in the Chick Chorioallantoic Membrane as a Model for Screening Angiogenic Agents including from Gene-Modified Cells. *International Journal of Molecular Sciences*, *23*(1), 452. https://doi.org/10.3390/ijms23010452

Kennedy, D. C., Coen, B., Wheatley, A. M., & McCullagh, K. J. A. (2022). Microvascular Experimentation in the Chick Chorioallantoic Membrane as a Model for Screening Angiogenic Agents including from Gene-Modified

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Cells. *International Journal of Molecular Sciences*, *23*(1), 452. https://doi.org/10.3390/ijms23010452

Kim, J., Harper, A., McCormack, V.,Sung H., Houssami, N., Morgan , E., Mutebi, M., Garvey,G., Soerjomataram, I., M. Fidler., M. (2025). Global patterns and trends in breast cancer incidence and mortality across 185 countries. *Nat Med* 31, 1154–1162. https://doi.org/10.1038/s41591-025-03502-3

Koffi, K., et al. (2014). "Genetic relationships among accessions of African indigenous melons (Cucumis melo L. ssp. agrestis) using AFLP markers." *Biochemical Systematics and Ecology*, 55, 1-8. doi:10.1016/j.bse.2014.06.008. 2.

L. Chen, S. Wang, Y. Feng, J. Zhang, Y. Du, J. Zhang, C.V. Ongeval, Y. Ni, Y. L Lewis CE, De Palma M, Naldini L. (2007). Tie2-expressing monocytes and tumor angiogenesis: regulation by hypoxia and angiopoietin-2. *Cancer Res*;67(18):8429-32. doi: 10.1158/0008-5472.

Ma'at, S., 2019. Teknik dasar kultur sel. Airlangga University Press.

Malathi, M., & Vadivelu, M. (2021). "In-vitro antioxidant, anti-inflammatory and cytotoxic activity of Cucumis melo L. of ethanolic extract." Biomedicine, 41(2), 1054-1060. doi:10.51248/.v41i2.1054.

Mallek-Ayadi, S., Bahloul, N. & Kechaou, N. (2016). Characterization, phenolic compounds andfunctional properties of Cucumis melo L. peels.*Food Chemistry*, 221: 1691-1697.

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Massard, C., Deutsch, E., & Soria, J.C. (2006). Tumour Stem Cell-Targeted Treatment: Elimination or Differentiation. *Annals of Oncology*, 17(11): 1620–1624.

Maugeri, A., Lombardo, G. E., Navarra, M., Cirmi, S., & Rapisarda, A. (2022). The chorioallantoic membrane: A novel approach to extrapolate data from a well-established method. *Journal of applied toxicology : JAT*, *42*(6), 995–1003. https://doi.org/10.1002/jat.4271

Nelsen, O. E. (1953). Coparative Embryology of the Vertebrates. The Blakiston Co. Inc.: New York.

Nugent, M. A., & Iozzo, R. V. (2000). Fibroblast growth factor-2. *International Journal of Biochemistry & Cell Biology, 32*(3), 263. https://doi.org/10.1016/S1357-2725(99)00133-8

Nurhasanah, D. , Fakhrudin, N. , Retnoaji, B. and Nugroho, A. Endro. (2023). Antiangiogenic Activity of n-hexane Insoluble Fraction and Its Tylophorine Component from Ficus septica Leaves in Chicken Chorioallantoic Membrane Induced by bFGF. *Asian Pacific Journal of Cancer Prevention*, *24*(1), 75-80. doi: 10.31557/APJCP.2023.24.1.75

Nurhidayati, L. G., Nugroho, A. E., Retnoaji, B., Sudarsono, S., & Fakhrudin, N. (2021). Antiangiogenesis Activity Study of Awar-Awar Leaf Ethanolic Extract (Ficus Septica Burm. F.) By Chick Chorioallantoic Membrane Method. *Indonesian Journal of Pharmacy*, *32*(1), 1-9. https://doi.org/10.22146/ijp.607

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Nursafitri, E., Sari, R., dan Harti, A.S. (2013). Kegunaan Daun Sirsak (Annona muricata L) Untuk Membunuh Sel Kanker dan Pengganti Kemoterapi.

Okamura, N., Ohta, T., Kunimasa, K., Uto, Y., & Kumazawa, S. (2020). Antiangiogenic activity of flavonols in chorioallantoic membrane (CAM) assay. Food Science and Technology Research, 26(6), 891–896.

Oktavia, S., Wijayanti, N., Retnoaji, B., (2017). Anti-angiogenic effect of Artocarpus heterophyllus seed methanolic extract in ex ovo chicken chorioallantoic membrane. Asian Pac. J. Trop. Biomed. 7, 240–244. https://doi.org/10.1016/j.apjtb.2016.12.024.

Ornitz, D. M. (2000). FGFs, heparan sulfate and FGFRs: Complex interactions essential for development. *BioEssays, 22*(2), 108–112.

Piao, X., Gao, F., Zhu, J., Wang, L., Zhao, X., Li, X. ... Zhang, Y. (2018). Cucurbitacin B inhibits tumor angiogenesis by triggering the mitochondrial signaling pathway in endothelial cells. International Journal of Molecular Medicine, 42, 1018-1025. https://doi.org/10.3892/ijmm.2018.3647

Pluchino, N. et al. (2019). Effect of local aromatase inhibition in endometriosis using a new chick embryo chorioallantoic membrane model. Journal of Cellular and Molecular Medicine, 23(8), 5808–5812. Available at: https://doi.org/10.1111/jcmm.14372

Potente, M., Gerhardt, H., & Carmeliet, P. (2011). Basic and therapeutic aspects of angiogenesis. *Cell*, *146*(6), 873–887. https://doi.org/10.1016/j.cell.2011.08.039

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Qian, O. Y., Harith, S., Shahril, M. R., & Shahidan, N. (2019). Bioactive Compounds In Cucumis Melo L. And Its Beneficial Health Effects: A Scoping Review. *Malaysian Applied Biology* *8*(4), 11–23. https://jms.mabjournal.com/index.php/mab/article/view/1872

Rajabi, M., & Mousa, S. A. (2017). The Role of Angiogenesis in Cancer Treatment. Biomedicines, 5(2), 34. https://doi.org/10.3390/biomedicines5020034

Rajasree, K., et al. (2021). "An Evaluation of the Antioxidant Activity of a Methanolic Extract of Cucumis melo L. Fruit (F1 Hybrid)." Separations, 8(1), 23. doi:10.3390/separations8080123.

Rashidi, H., & Sottile, V. (2009). The chick embryo: hatching a model for contemporary biomedical research. *BioEssays : news and reviews in molecular, cellular and developmental biology*, *31*(4), 459–465. https://doi.org/10.1002/bies.200800168

Ratri, G., Indah, A., Amirah, W., Faris, A. El, Wahyuni, S., Khadijah, T., Ainun, R. (2015). Pengetahuan Ibu Tentang Pengobatan Selama Masa Kehamilan. Jurnal Farmasi Komunitas, 2(2), 47–51.

Rezaei S, Azarpira N, Koohpeyma F, Yousefi R, Doaei S, Heidari M, Gholamalizadeh M, Haghshenas MR, Mazloom Z. (2022) Evaluation of morphology and angiogenesis of breast cancer in BALB/c mice using trypsin inhibitor from *Cucumis melo* seeds. *In vitro* and *in vivo*study. Contemp Oncol (Pozn). 26(3):204-219. doi: 10.5114/wo.2022.120700. Epub 2022 Oct 24. PMID: 36381669; PMCID: PMC9641631.

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Ribatti D. (2016). The chick embryo chorioallantoic membrane (CAM). A multifaceted experimental model. *Mechanisms of development*, *141*, 70–77. https://doi.org/10.1016/j.mod.2016.05.003

Ribatti, D., Annese, T., (2023). Chick embryo in experimental embryology and more. Pathology Research and Practice. 245, 154478. https://doi.org/10.1016/j.prp.2023.154478

Ribatti, D. (2008). *Chick embryo chorioallantoic membrane as a useful tool to study angiogenesis*. In *International Review of Cell and Molecular Biology* (Vol. 270, pp. 181–224). Elsevier Inc.

Ribatti, D. (2008). The chick embryo chorioallantoic membrane in the study of tumor angiogenesis. *Rom J Morphol Embryol*, *49*(2), 131-5.

Ribatti, D. (2010). The Chick Embryo Chorioallantoic Membrane as an *In Vivo* Assay to Study Antiangiogenesis. *Pharmaceuticals*, *3*(3), 482-513. https://doi.org/10.3390/ph3030482n

Ribatti, D. (2014). *The chick embryo chorioallantoic membrane as a model for tumor biology. Experimental Cell Research, 328(2), 314–324.*doi:10.1016/j.yexcr.2014.06.010

Ribatti, D. (2023). The chick embryo chorioallantoic membrane patient-derived xenograft (PDX) model. Pathology - Research and Practice, 243,

Ribatti, D., Nico, B., Vacca, A., & Presta, M. (2006). The gelatin sponge-chorioallantoic membrane assay. *Nature protocols*, *1*(1), 85–91. https://doi.org/10.1038/nprot.2006.13

Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus
Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Ribatti, D., Nico, B., Vacca, A., & Presta, M. (2006). The gelatin sponge–chorioallantoic membrane assay. *Nature protocols*, *1*(1), 85-91.

Ribatti. D. (2016). The Chick embryo chorioallantoic membrane (CAM). A multifacted experimental model. Mechanism of Development 141: 70-77.

Risdayanti, R., & Herlina, N. (2020). Hubungan Antara Faktor Psikososial dan Faktor Lingkungan dengan Kualitas Hidup Pasien Kanker yang Menjalani Kemoterapi di RSUD Abdul Wahab Sjahranie Samarinda. Borneo Student Research (BSR), 1(3), 2118–2129.

Robin Colenbier, Lenny Coppens, Tine Logghe, Eke van Zwol, Jean-Pierre Timmermans, Johannes Bogers. (2024). Protocol for xenografting of BxPC-3 pancreatic tumors using a chorioallantoic membrane model, STAR Protocols, Volume 5, Issue 2, 102968, ISSN 2666-1667, https://doi.org/10.1016/j.xpro.2024.102968.

Rozi, A. 2012. *Ca Mammae (Kanker Payudara)*. Buku Saku Dokter. Jakarta.

Russell WMS, Burch RL Prinsip-prinsip Teknik Eksperimental yang Manusiawi. Methuen & Co Ltd.; London, Inggris: 1959.

S. D., Ranis, R. E., & Daryono, B. S. (2014). Stability Phenotypic Characters and The Scent of Gama Melon Parfum Cultivar. IPTEK Journal of Proceedings Series, (1). https://doi.org/10.12962/j23546026.y2014i1.286

Saha, S., et al. (2018). "Estimates of Genetic Component of Variation in Muskmelon (Cucumis melo L.)." International Journal of Current Microbiology and Applied Sciences, 7(7), 115-121. doi:10.20546/ijcmas.2018.707.138. 3. Amaral, J., et al. (2014).

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

"Regeneration of cotyledonary nodes from the recalcitrant melon cultivar Gacho." African Journal of Agricultural Research, 9(11), 1010-1018. doi:10.5897/ajar2014.8584.

Salamah, R., & Widiyanto, S. (2022). Chloroform Fraction of Cucumis melo L.'Gama Melon Parfum'Cytotoxicity against Breast Cancer Cell T47D and MCF7. In *BIO Web of Conferences* (Vol. 49, p. 02001). EDP Sciences. https://doi.org/10.1051/bioconf/20224902001

Saleem U, Ahmad B, Ahmad M, Hussain K, Bukhari NI, Ashraf M. (2015). Evaluation of anti-angiogenic activity of latex and extracts of euphorbia helioscopia using chorioallontoic membrane (cam) assay. International Journal Of Agriculture & Biology; 17 (2): 339-344.

Saputri, A. P., Wibowo, W. A. and Daryono, B. S. (2020*). Phenotypical Characters and Biochemical Compound of Cucurbitacin Melon (Cucumis melo L. 'Gama Melon Parfum') Resulted from Breeding. AIP Conference Proceedings, 2260. https://doi.org/10.1063/5.0017615*

Saputri, A. P., Wibowo, W. A., & Daryono, B. S. (2020). Phenotypical Characters and Biochemical Compound of Cucurbitacin Melon (Cucumis melo L. 'Gama Melon Parfum') Resulted from Breeding. AIP Conference Proceedings, 2260. https://doi.org/10.1063/5.0017615

Sarnella, A., Ferrara, Y., Terlizzi, C., Albanese, S., Monti, S., Licenziato, L., & Mancini, M. (2024). The Chicken Embryo: An Old but Promising Model for In Vivo Preclinical Research. *Biomedicines*, *12*(12), 2835. https://doi.org/10.3390/biomedicines12122835

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Siddiqui, Imtiaz & Sanna, Vanna & Ahmad, Nihal & Sechi, Mario & Mukhtar, Hasan. (2015). Resveratrol nanoformulation for cancer prevention and therapy. Annals of the New York Academy of Sciences. 1348. 10.1111/nyas.12811.

Simon A, Robb K. (2021). Breast Cancer. Cambridge Handb Psychol Heal Med Second Ed. Aug 7;577–80.

Sitki-Copur M. (2019). State of cancer Research around the globe. Oncology Journal; 33(5): 181-5.

Smith, T. (2004). Avian Embryo. Mississippi State University. Hal : 4-10.

Song, B., Wang, W., Tang, X., Goh, R. M. W. -J., Thuya, W. L., Ho, P. C. L., Chen, L., & Wang, L. (2023). Inhibitory Potential of Resveratrol in Cancer Metastasis: From Biology to Therapy. *Cancers*, *15*(10), 2758. https://doi.org/10.3390/cancers15102758.

Song, Y. S., Kim, S. H., Sa, J. H., Jin, C., Lim, C. J., & Park, E. H. (2003). Anti-angiogenic, antioxidant and xanthine oxidase inhibition activities of the mushroom Phellinus linteus. *Journal of ethnopharmacology*, *88*(1), 113–116. https://doi.org/10.1016/s0378-8741(03)00178-8

Suhail, M. (2020). "Effect of Cucumis melo Seeds and Allopurinol on Litholytic and Renal Histological Profile in Male Rats." *Proceedings of Shaikh Zayed Medical Complex Lahore*, 34(1), 1-6. doi:10.47489/p000s342z7511-6mc.

Sunuwar, S., & Heo, Y. S. (2026). Reactive Oxygen Species in Embryo Development: Sources, Impacts, and Implications for In Vitro Culture Systems. *Life*, *16*(1), 136. https://doi.org/10.3390/life16010136

Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus
Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Tannin-Spitz, T., Grossman, S., Dovrat, S., Gottlieb, H. E., & Bergman, M. (2007). Growth inhibitory activity of cucurbitacin glucosides isolated from Citrullus colocynthis on human breast cancer cells. *Biochemical Pharmacology*, *73*(1), 56–67. https://doi.org/10.1016/j.bcp.2006.09.012

Tommy Chastel, Serena Filiberti, Stefania Mitola, Roberto Ronca, Andrei Turtoi, Michela Corsini. (2025). Protocol for performing angiogenic and tumorigenic assays using the in ovo chick embryo chorioallantoic membrane model, STAR Protocols, Volume 6, Issue 1, 103663, ISSN 2666-1667, https://doi.org/10.1016/j.xpro.2025.103663

Utari, K., Nursafitri, E., Sari, A.I. (2013). Kegunaan Daun Sirsak (Annona muricata L.) Untuk Membunuh Sel Kanker dan Pengganti Kemoterapi. Jurnal Kesmadaska, 4(2).

Vargas, A., Zeisser-Labouèbe, M., Lange, N., Gurny, R., & Delie, F. (2007). The chick embryo and its chorioallantoic membrane (CAM) for the *in vivo* evaluation of drug delivery systems. *Advanced Drug Delivery Reviews*, *59*(11), 1162–1176.

Vishwakarma, V. K., Gupta, J. K., & Upadhyay, P. K. (2017). Pharmacological importance of *Cucumis melo* L.: An overview. *Asian Journal of Pharmaceutical and Clinical Research*, *10*(3), 8–12. https://doi.org/10.22159/ajpcr.2017.v10i3.13849.

Vu, B.T., Shahin, S.A., Croissant, J. (2018). Chick chorioallantoic membrane assay as an *in vivo* model to study the effect of nanoparticle-based anticancer

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

drugs in ovarian cancer.*Sci Rep* 8, 8524. https://doi.org/10.1038/s41598-018-25573-8

W. A. Wibowo, M. F. Al Rasyid, S. E. Maharani, and B. S. Daryono. (2022). "Genetic Stability Analysis Based on Inter-Simple Sequence Repeat and β-Carotene Content Analysis in Melon (Cucumis melo L. 'GAMA Melon Parfum')", *Int. J. Adv. Sci. Eng. Inf. Technol.*, vol. 12, no. 4, pp. 1606–1612.

Wachholz, G. E., Varela, A. P. M., Teixeira, T. F., de Matos, S. M. S., Rigon da Luz Soster, P., Vianna, F. S. L., de Souza, D. O. G., Roehe, P. M., Schuler-Faccini, L., & Fraga, L. R. (2021). Zika virus-induced brain malformations in chicken embryos. *Birth defects research*, *113*(1), 22–31. https://doi.org/10.1002/bdr2.1813

West, D.C., Thompson W.D., Sells P.G., and Burbridge M.F., (2001). *Angiogenesis Protocols: Angiogenesis Assay Using Chick Chorioallantiocc Membrane*, Editor by J.C. Murray, Humana Press Inc., New Jersey, 107-129.

Wibowo, W.A., Maryanto, S.D. & Daryono, B.S. (2021). Phenotypic characters and identification CYPs (Cyclophilin) gene in Cucumis melo L. cv. Gama Melon Parfum. Biodiversitas Journal of Biological Diversity.

World Health Organization. (2019). *WHO global report on traditional and complementary medicine*. World Health Organization.

Zhang, L. B., Simmons, M. P., Kocyan, A., & Renner, S. S. (2006). Phylogeny of the Cucurbitales based on DNA sequences of nine loci from three genomes: Implications for morphological and sexual system evolution. *Molecular*

UNIVERSITAS GADJAH MADA
Efek ekstrak etanolik buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap aktivitas antiangiogenesis model chorio allantoic membrane (CAM) dan perkembangan embrio ayam (Gallus gallus Domesticus, Linnaeus 1758)
Shuha ma'muriyah halim, Dr. Slamet Widiyanto, S.Si., M.Sc. ; Dr. Ardaning Nuriliani, S.Si., M.Kes.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Phylogenetics and Evolution, *39*(2), 305–322. https://doi.org/10.1016/j.ympev.2005.10.002

Zhang, R., Yao, Y., Gao, H., & Hu, X. (2024). Mechanisms of angiogenesis in tumour. *Frontiers in oncology*, *14*, 1359069. https://doi.org/10.3389/fonc.2024.1359069

Zhang, X., Li, N. L., Guo, C., Li, Y. D., Luo, L. L., Liu, Y. Q., Duan, Y. Y., Li, Z. D., Xie, X. R., Song, H. X., Yang, L. P., & An, F. Y. (2018). A vaccine targeting basic fibroblast growth factor elicits a protective immune response against murine melanoma. *Cancer biology & therapy*, *19*(6), 518–524. https://doi.org/10.1080/15384047.2018.1435223

Zulfikar, M. (2021). *Potensi antikanker ekstrak buah melon (Cucumis melo L. 'Gama Melon Parfum') terhadap sel kanker payudara T47D* (Tesis). Universitas Gadjah Mada, Yogyakarta, Indonesia.

Zulfikar, M., Widya, F. S., Wibowo, W. A., Daryono, B. S., & Widiyanto, S. (2020). Antioxidant activity of melon fruit (*Cucumis melo* L. 'GMP') Ethanolic Extract. *AIP Conference Proceedings*, *2260* (September). https://doi.org/10.1063/5.0015748