



## DAFTAR PUSTAKA

- Ali, M. E., Razzak, M. A., Hamid, S. B. A., Rahman, M. M., Amin, M. A., Rashid, N. R. A., & Asing .(2015). *Multiplex PCR assay for the detection of five meat species forbidden in Islamic foods.* *Food Chemistry*, 177, 214–224.
- Ali, M. E., Sultana, S., Hamid, S. B. A., Hossain, M. M., Yehya, W. A., Kader, M. A., et al. (2016). Gelatin Controversies in Food, Pharmaceuticals and Personal Care Products: Authentication methods, current status and future challenges. *Crit Rev Food Sci Nutr.* 58(9):1495-1511 DOI: 10.1080/10408398.2016.1264361.
- Alrobaish, W. S., Vlerick, P., Pieterse, Luning., Jacxsens. L., (2021). Food Safety Governance in Saudi Arabia: Challenges in Control of Imported Food. *Institute of Technologists.* Doi: 10.1111/1750 3841. 15552.
- Arya, M., Shergill, I.S., Williamson, M., Gommersal, L., Arya, N., Patel, H.R.H. (2004). Basic Principles of Real Time Quantitative PCR. *Expert Rev Mol Diagn* 5(2):209-19. doi: 10.1586/14737159.5.2.209.
- Asing, Ali, E., Hamid, S. B. A., Hossain, M., Ahamed, M. N. U., Hossain, S. A., Naquiah, N., et al. (2016). Duplex real-time PCR assay using SYBR Green to detect and quantify Malayan box turtle (*Cuora amboinensis*) materials in meatballs, burgers, frankfurters and traditional Chinese herbal jelly powder. *Food Addit Contam Part A Chem Anal Kontrol Expo Risk Assess* 33(11):1643-1659. doi: 10.1080/19440049.2016.1236403.
- Azira, T. N., Man, Y. B. C., Hafidz, R. N. R. M., Aina, M. A., & Amin, I. (2014). Use of principal component analysis for differentiation of gelatine sources based on polypeptide molecular weights. *Food Chem* 151:286-92. doi: 10.1016/j.foodchem.2013.11.066.
- Badan Karantina Pertanian (2013). SK Kepala Badan Karantina Pertanian No. 832/Kpts/OT. 140/L/3/2013 tentang *Pedoman Persyaratan dan Tindakan Karantina Hewan terhadap Pengeluaran Sarang Burung Walet dari Wilayah Negara Republik Indonesia ke Republik Rakyat China*. Jakarta.
- Badan Karantina Pertanian (2014). SK Kepala Badan Karantina Pertanian No. 395/Kpts/OT.160/L/4/2014 tentang *Pedoman Pemantauan Karantina Terhadap Pengeluaran Sarang Burung Walet ke Republik Rakyat Tiongkok*. Jakarta.
- Badan Karantina Pertanian (2014). SK Kepala Badan Karantina Pertanian No. 416/Kpts/OT.160/L/4/2014 tentang *Pedoman Pemeriksaan Kandungan Nitrit Sarang Burung Walet untuk Pengeluaran ke Negara Republik Rakyat Tiongkok*. Jakarta.



Badan Karantina Pertanian (2018). SK Kepala Badan Karantina Pertanian No. 2732/Kpts/KR.120/L/12/2018 tentang *Pedoman Pemanasan Sarang Burung Walet untuk Pengeluaran ke Negara Republik Rakyat Tiongkok*. Jakarta.

Badan Karantina Pertanian (2021). SK Kepala Badan Karantina Pertanian No. 6291/Kpts/HK.140/K/7/2021 tentang *Pedoman Tindakan Karantina Hewan terhadap Pengeluaran Sarang Burung Walet dari Wilayah Negara Republik Indonesia ke Negara Selain Tiongkok*. Jakarta.

Brue, G., Candele, M. M., Romero, P., Navarro, A., & Murcia, A.M. (2023). Internal Validation of the ASFV MONODOSE dtec-qPCR Kit for African Swine Fever Virus Detection under the UNE-EN ISO/IEC 17025:2005 Criteria. *Vet Sci.* 2023, 10,564 DOI: 10.3390/vetsci10090564

Cho, S. M., Gu, Y. S., & Kim, S. B. (2005). Extracting Optimization and Physical Properties of Yellow Fin Tuna (*Thunnus albacares*) Gelatin Compared to Mamalian Gelatins. *Food hydrocolloids* 19(2):221-229. DOI: 10.1016/j.foodhyd.2004.05.005

Chua, Y.G, S.H., Bloodworth, B.C., Li, S.F.Y., & Leong, L.P. (2018). Identification of Edible Bird's Nest with Amino Acid and Monosaccharide Analysis. *J. Agric. Food Chem.* 63(1): 279–289. <https://doi.org/10.1021/jf503157n>

Corona, B., Leonard, R., Carpio, Y., Uffo, O., & Martínez, S. (2007). Short Communication. PCR Detection of DNA of Bovine, Ovine-Caprine and Porcine Origin in Feed as Part of a Bovine Spongiform Encephalopathy Kontrol Program. *Spanish Journal of Agricultural Research* 5(3): 312–317. <https://doi.org/10.5424/sjar/2007053-5342>

Department of Agriculture, Water, and the Environment, Australian Government. (2021). *Retorted Goods*. Agriculture.gov.au. ABN 34 190 894 983

Effendi, K.M. (2015). Edible Bird's Nest as Multipotential Agent. *Jurnal Majority* 4 (5): 40-44.

Elfita, L .(2015). Analisa Protein dan Asam Amino Sarang Burung Walet (*Collocalia fuchiphaga*) Asal Painan. *Jurnal Sains Farmasi & Klinis.* 1(1): 1-22. <http://doi.org/10.29208/jsfk.2014.1.1.22>

Erwanto, Y., Rohman, A., Arsyanti, L., & Pranoto, Y. (2018). Identification of pig DNA in Food Products Using Polymerase Chain Reaction (PCR) for Halal Authentication-a review. *International Food Research Journal* 25(4): 1322-1331.

Fajardo, V, Gonzales. I., Rojas M, T., Martin R. (2010). Determination of animal origin of meat and gelatin by MALDI-TOF-MS. *Journal of Food Composition and Analysis*, 41, 104-112



Food and Drug Administration. USA. (2007). *Guidance for Industry and FDA Staff. Statistical Guidance in Reporting Result from Studies Evaluating Diagnostic Test.* US Department of Health and Human Services.

Fujita M, Leh C. (2020). The Feeding Ecology of Edible Nest Swiftlets in a Modified Landscape in Sarawak. *Anthropogenic Tropical Forests*, Springer. Singapore. [https://doi.org/10.1007/978-981-13-7513-2\\_19](https://doi.org/10.1007/978-981-13-7513-2_19), 401- 415

Gonzalez, A.G. and Herrador, M.A. (2007). A practical guide to analytical method validation, including measurement uncertainty and accuracy profiles. *Trends in Analytical Chemistry* 26: 227 –238.

GMIA (2012) *Gelatine Handbook*. USA: Gelatin Manufacturers Institute of America. GMIA

Grundy, H. H., Reece, P., Buckley, M., Solazzo, C. M., Dowle, A. A., Ashford, D., et al.. (2016). A Mass Spectrometry Method for the Determination of the Species of Origin of Gelatine in Foods and Pharmaceutical Products. *Food Chemistry* 190:276-284. <https://doi.org/10.1016/j.foodchem.2015.05.054>

Haddad, M. A., Abu-Romman, S., & Haddad, M. (2020). PCR-Based Identification of Sapi Milk Used in Goat and Sheep Local Dairy Products Marketed in Jordan. *Eurasian Journal of Biosciences* 14 (2): 5267-5272. <https://www.researchgate.net/publication/345904880>

Helmi., Nuradji,H., Dharmayanti, N.L.P.I, Sudarnika E., Lukman, D.W., Wibawa, I.W.T. (2018). Antiviral Activity of Edible Bird's Nest Extract on Highly Pathogenic Avian Influenza H5N1 Viral Infection in Vitro. *HVM Bioflux* 10(2): 62-68.

Hermanto, S., & Fatimah, W. (2013). Differentiation of Sapi and Babi Gelatin Based on Spectroscopic and Electrophoretic Analysis. *Journal of Food and Pharmaceutical Sciences* 1(3): 68-73. DOI: <https://doi.org/10.14499/jfps>.

Hosein, H.I., Rouby, S.R., Menshawy, A., Ahmed, E. A., 2017, Sensitivity and specificity the commonly used diagnostic procedures of Bovine Brucellosis. *Veterinary Science Vol. 3:* 45

Jannat, B., Ghorbani, K., Shafieyan, H., Kouchaki, S., Behfar, A., Sadeghi, N., Beyramysoltan, S., Rabbani, F., Dashtifard, S., & Sadeghi, M. (2018). Gelatin Speciation Using Real-time PCR and Analysis of Mass Spectrometry-based Proteomics Datasets. *Food Control* 87: 79–87. <https://doi.org/10.1016/j.foodcont.2017.12.006>

Jong CH, Tay KM, Lim CP. (2013). Application of the fuzzy failure mode and effect methodology to edible bird nest processing. *Computers and electronics in agriculture* 96: 9008. <https://doi.org/10.1016/j.compag.2013.04.015>



Karim, A., & Bhat, R. (2008). Gelatin alternatives for the food industry: Recent developments, challenges and prospects. *Trends in Food Science & Technology* 19(12): 644-656. <https://doi.org/10.1016/j.tifs.2008.08.001>.

Kashim, M. I. A., Haris, A. A., Hasim, N. A., Mutalib, S.A., & Anuar, N. (2022). *Species-Specific Deoxyribonucleic Acid (DNA) Identification of Bovine in Cultured Meat Serum for Halal Status. Foods*, 11(20). <https://doi.org/10.3390/foods11203235>

Kementerian Pertanian (2020). Peraturan Menteri Pertanian No. 26 Tahun 2020 tentang *Tindakan Karantina Hewan Terhadap Pemasukan Atau Pengeluaran Sarang Walet Ke Dan Dari Dalam Wilayah Negara Republik Indonesia*.

Lee, J.-H., Kim, M.-R., Jo, Ch-H., Jung, Y.-K., Kwon, K., & Kang, T. S. (2016). Specific PCR assays to determine sapi, babi, fish and plant origin of gelatin cap-sules of dietary supplements. *Food Chem* 211:253-9. doi: 10.1016/j.foodchem.2016.05.060.

Magnusson & Ornemark .(2014). Eurachem Guide: *The Fitness for Purpose of Analytical Guide to Method Validation and Related Topics* (<http://www.eureachem.org>)

Marcone, M. F. (2005). *Characterization of The Edible Bird's Nest the Caviar of The East*. Food Research International 38(10): 1125-1134. <https://doi.org/10.1016/j.foodres.2005.02.008>

Matsunaga, T., Chikuni, K., Tanabe, R., Muroya, S., Shibata, K., & Yamada, J. (1999). A Quick and Simple Method for The Identification of Meat Species and Meat Products by PCR Assay. *Meat Sci* 51(2):143-8. doi: 10.1016/s0309-1740(98)00112-0.

Mendoza-Romero, L., Verkaar, E. L. C., Savelkoul, P. H., Catsburg, A., Aarts, H. J. M., Buntjer, J. B., & Lenstra, J. A. (2004). Real-time PCR detection of ruminant DNA. *J Food Prot* 67(3):550-4. doi: 10.4315/0362-028x-67.3.550.

Nikzad, J., Shahhosseini, S., Tabarzad, M., Nafissi-Varcheh, N., & Torshabi, M. (2017). Simultaneous Detection of Bovine and Porcine DNA in Pharmaceutical Gelatin Capsules by Duplex PCR Assay for Halal Authentication. *DARU Journal of Pharmaceutical Sciences* 25:3. <https://doi.org/10.1186/s40199-017-0171-3>

Nolan, T., Hands, R.E., Bustin, S.A. 2006. Quantification of mRNA Using Real-Time RT PCR. *Nat Protoc* 1(3):1559-82. doi: 10.1038/nprot.2006.236.

Parikh R., Mathai A., Parikh S., Chandra S.G, Thomas R. Understanding and using sensitivity, specificity and predictive values. *Indian J Ophthalmol*. 2008 Jan-Feb;56(1):45-50. doi: 10.4103/0301-4738.37595. PMID: 18158403; PMCID: PMC2636062.



Riyanto. (2014) *Validasi & Verifikasi Metode Uji: Sesuai dengan ISO/IEC 17025 Laboratorium Pengujian dan Kalibrasi*. Ed. 1, Cetakan 1. Deepublish. Yogyakarta.

Safarida, A., Dewantoro, A., Rahmasari, D., Nuraeni, U., Susmiarni, R. D., Apriori, D., Damaceba, R., Amin, M. M. (2023) *Verifikasi Metode Deteksi Babi SNI ISO/TS 20224-3:2020 pada Matriks Gelatin*. Jurnal Standardisasi Volume 25 Nomor 2 , Juli 2023: Hal 79 - 88

Salamah, N., Erwanto, Y., Martono, S., & Rohman, A. (2022). The Employment of Real-Time Polymerase Chain Reaction for the Identification of Sapi Gelatin in Gummy Candy. *Indonesian J Pharm* 33(3): 448-454. <http://blast.ncbi.nlm.nih.gov/>

Singapore Accreditation Council (2019). *Accreditation Scheme for Laboratories. Guidance Notes C &B and ENV 002. Method Validation of Microbiological Methods*. Enterprise Singapore.

Shahimi, S., Mutalib, S.A., Ismail, N., Elias, A., Hashim, H., Kashim, M.I.A.M. (2021). Species-specific Identification of Porcine Blood Plasma in Heat-treated Chicken Meatballs. *Saudi Journal of Biological Sciences* 28(4):2447-2452. <https://doi.org/10.1016/j.sjbs.2021.01.043>.

Sudjadi, Wardani, H. S., Sepminarti, T., & Rohman, A. (2016). Analysis of Porcine GelatinDNA in a Commercial Capsule Shell Using Real-Time Polymerase Chain Reaction for Halal Authentication. *International Journal of Food Properties*, 19:2127–2134. DOI: 10.1080/10942912.2015.11101642127.

Sultana, S., Hossain, M. A. M., Azlan, A., Johan, M. R., Chowdhury, Z. Z., & Ali, M. E. (2020). TaqMan Probe Based *Multiplex* Quantitative PCR Assay for Determination of Bovine, Porcine, and Fish DNA in Gelatin Admixture, Food Products and Dietary Supplements. *Food Chemistry*, 325. <https://doi.org/10.1016/j.foodchem.2020.126756>

Sultana, S., Hossain, M. A. M., Zaidul, I. S. M., & Ali, M. E. (2018). *Multiplex* PCR to Discriminate Bovine, Porcine, and Fish DNA in Gelatin and Confectionery Products. *LWT*, 92: 169–176. <https://doi.org/10.1016/j.lwt.2018.02.019>

Sumiarto B, Setyawan B. 2018. *Epidemiologi Veteriner Analitik*. Gadjah Mada University Press. ISBN: 978 602 386 301 3. Yogyakarta

Tukiran, N. A., Ismail, A., Mustafa, S., & Hamid, M. (2016). Development of Anti Peptide Enzyme-linked Immunosorbent Assay for Determination of Gelatin in Confectionery Products. *Journal of Food Science & Technology*, 51:54–6. DOI:10.1111/IJFS.12971.

Yilmaz, M. T., Kesmen, Z., Baykal, B., Sagdic, O., Kulen, O., Kacar, O., & Baykal, A. T. (2013). A Novel Method to Differentiate Bovine, Porcine Gelatins in Food products: Nano UPLC-ESI-Q-TOF-MS E based data independent acquisition



**DETEKSI GELATIN PADA SARANG BURUNG WALET MENGGUNAKAN METODE REALTIME POLYMERASE CHAIN REACTION**

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technique to detect marker peptides in gelatin. *Food Chem* 141(3):2450-8. doi: 10.1016/j.foodchem.2013.05.096.

Zhang, C. L., Fowler, M. R., Scott, N. W., Lawson, G., & Slater, A. (2007). A TaqMan Real-time PCR System for The Identification and Quantification of Bovine DNA in Meats, Milks and Cheeses. *Food Control*, 18(9): 1149–1158. <https://doi.org/10.1016/j.foodcont.2006.07.018>