



REFERENCES

- Aida, A. A., Che Man, Y. B., Raha, A. R., and Son, R., 2007, Detection of Pig Derivatives in Food Products for Halal Authentication by Polymerase Chain Reaction–Restriction Fragment Length Polymorphism, *J. Sci. Food Agr.*, 87(4), 569–572.
- Aida, A. A., Che Man, Y. B., Wong, C. M. V. L., Raha, A. R., and Son, R., 2005, Analysis of Raw Meats and Fats of Pigs using Polymerase Chain Reaction for Halal Authentication, *J. Meat Sci.*, 69(1), 47-52.
- Ali, M. E., Hashim, U., Mustafa, S., and Che Man, Y. B., 2011, Swine-Specific PCR-RFLP Assay Targeting Mitochondrial Cytochrome B Gene for Semiquantitative Detection of Pork in Commercial Meat Products, *J. Food Anal. Methods*, 5(3), 613–623.
- Ali, M. E., Kashif, M., Kamal, U., Hashim, U., Mustafa, S., and Man, Y. B. C., 2011, Species Authentication Methods in Foods and Feeds: The Present, Past, and Future of Halal Forensics. *J. Food Anal. Methods*, 5, 935–955.
- Ali, M. E., Hashim, U., Mustafa, S., Che Man, Y. B., Dhahi, T. S., Kashif, M., 2012, Analysis of Pork Adulteration in Commercial Meatballs Targeting Porcine Specific Mitochondrial Cytochrome b Gene by TaqMan Probe Real-Time Polymerase Chain Reaction, *J. Meat Sci.*, 91(4), 454–459.
- Ali, M. E., Rahman, M. M., Hamid, S. B. A., Mustafa, S., Bhassu, S., and Hashim, U., 2013, Canine-specific PCR Assay Targeting Cytochrome B Gene for The Detection of Dog Meat Adulteration in Commercial Frankfurters, *J. Food Anal. Methods*, 7(1), 234–241.
- Aljanabi, S. M., Forget L., and Dookun A., An Improved and Rapid Protocol for Isolation Of Polysaccharide and Polyphenol Free Sugarcane DNA, *Plant Mol. Biol. Rep.*, 17, 1-8.
- Anir, N. A., Nizam, M. D. N. M. H., and Masliyana, A., 2008, The Users Perceptions and Opportunities in Malaysia in Introducing RFID System for Halal Food Tracking, *WSEAS Transactions on Information Science and Applications*, 5(5), 843-852.
- Ballin, N. Z., 2010, Authentication of Meat and Meat Products, *J. Meat Sci.*, 86(3), 577–587.



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Becker, T., Benner, E., and Glitsch, K., 2000, Consumer Perception of Fresh Meat Quality in Germany, *Brit. Food J.*, 102(3), 246-266.

Benkheira, M. H., 2002, Le rite _a la lettre. R_egime carn_e et norms religieuses. In P. Bonte, A.-M. Brisebarre, & A. Gokalp (Eds.), *Sacrifices en islam. Espaces et temps d'un rituel* (pp. 63-93). Paris, France: CNRS Editions.

Bonne, K., and Verbeke, W., 2008, Religious Values Informing Halal Meat Production and The Control and Delivery of Halal Credence Quality, *Agr. Hum. Values*, 25(1), 35-47.

Cahyaningtyas, W., 2012, Validasi Metode Analisis Cemaran Daging Babi dalam Pangan Olahan Daging (Nuget) dengan Menggunakan Teknik Polymerase Chain Reaction-Restriction Fragment Length Polymorphism (PCR-RFLP), *Skripsi*, Jurusan Kimia FMIPA UGM, Yogyakarta.

Cerani_c, S., and Bo_zinovi_c, N., 2009, Possibilities and Significance of HAS Implementation (Halal Assurance System) in Existing Quality System in Food Industry, *Biotechnol. Anim. Husb.*, 25(3-4), 261-266.

Che Man, Y., Aida, A., Raha, A., and Son, R., 2007, Identification of Pork Derivatives in Food Products by Species-Specific Polymerase Chain Reaction (PCR) for Halal Verification, *Food Control*, 18(7), 885–889.

Che Man, Y. B., Gan, H. L., NorAini, I., Nazimah, S. A. H., and Tan, C. P., 2005, Detection of Lard Adulteration in RBD Palm Olein using an Electronic Nose, *J. Food Chem.*, 90(4), 829–835.

Chou, C. C., Lin, S. P., Lee, K. M., Hsu, C. T., Vickroy, T. W., and Zen, J. M., 2007, Fast Differentiation of Meats From Fifteen Animal Species by Liquid Chromatography with Electrochemical Detection using Copper Nanoparticle Plated Electrodes, *J. Chromatogr. B. Analyt. Technol Biomed Life Sci.*, 846(1-2), 230-239.

Chen, F. C. and Hsieh, Y. H. P., 2000, Detection of Pork in Heat-Processed Meat Products by Monoclonal Antibody-based ELISA, *J. AOAC Int.*, 83(1), 79–85.

Clark, D., 2005, *Molecular Biology: Understanding The Genetic Revolution*, Elsevier Academic Press, United State of America, pp 636-635,655.



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Clayton, D. A., 1996, *Mitochondrial DNA Replication in Depamphilis, M.L., DNA Replication in Eukaryotic Cells*, Cold Spring Harbor Laboratory Press, USA, pp 1015-1026.

Da Fonseca, R. R., Johnson, W. E., O'Brien, S. J., Ramos, M. J., and Antunes, A., 2008, The Adaptive Evolution of The Mammalian Mitochondrial Genome, *BMC Genomics*, 9, 119.

Dale, J. W., and Malcom, V. S., 2002, *From Genes to Genomes: Concepts and Applications of DNA Technology*, John Wiley and Sons Ltd, New York.

Dennis, M. J., 1998, Recent Developments in Food Authentication, *Analyst*, 123(9), 151–156.

Dooley, J. J., Paine, K. E., Garret, S. D., and Brown, H. M., 2004, Detection of Meat Species Using TaqMan real-time PCR assays, *J. Meat Sci.*, 68, 431-438.

Enjelina, E., 2013, Validasi Uji Kontaminasi Babi dalam Bakso dengan Metode Real-Time Polymerase Chain Reaction (RTi-PCR), *Skripsi*, Jurusan Kimia FMIPA UGM, Yogyakarta.

Fajardo, V., González, I., Martín, I., Rojas, M., Hernández, P. E., García, T., 2008, Differentiation of European Wild Boar (*Sus scrofa*) and Domestic Swine (*Sus scrofa domestica*) Meats by PCR Analysis Targeting The Mitochondrial D-loop and The Nuclear Melanocortin Receptor 1 (MC1R) Genes, *J. Meat Sci.*, 78(3), 314–322.

Fajardo, V., González, I., Rojas, M., García, T., and Martín, R., 2010, A Review of Current PCR-based Methodologies for The Authentication of Meats from Game Animal Species, *Trends Food Sci. Tech.*, 21(8), 408–421.

Girish, P. S., Anjaneyulu, A. S. R., Viswas, K. N., Shivakumar, B. M., Anand, M., and Patel, M., 2005, Meat Species Identification by Polymerase Chain Reaction-Restriction Fragment Length Polymorphism (PCR-RFLP) of Mitochondrial 12S rRNA Gene, *J. Meat Sci.*, 70(1), 107-112.

Hargin, K. D., 1996, Authenticity Issues in Meat and Meat Products, *J. Meat Sci.*, 43 (1), 277–289.



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Herman, L., 2001, Determination of The Animal Origin of Raw Food by Species-Specific PCR, *J. Dairy Res.*, 68, 429–436.

Ilhak, O. I., and Arslan, A., 2007, Identification Of Meat Species By Polymerase Chain Reaction (PCR) Technique, *Turk. J. Vet. Anim. Sci.*, 31(3), 159-163.

Karabasanavar, N. S., Singh, S. P., Kumar, D., and Shebannavar, S. N., 2014, Detection of Pork Adulteration by Highly-Specific PCR Assay of Mitochondrial D-loop, *J. Food Chem.*, 145, 530–534.

Kesmen, Z., Gulluce, A., Sahin, F., and Yetim, H., 2009, Identification of Meat Species by TaqMan-based Real-Time PCR Assay, *J. Meat Sci.*, 82(4), 444–449.

Lockley, A. K., and Bardsley, R. G., 2000, DNA-based Methods for Food Authentication, *Trends Food Sci. Tech.*, 11(2), 67–77.

Mafra, I., Ferreira, I. M. P. L. V. O., and Oliveira, M. B. P. P., 2008, Food Authentication by PCR-based Methods, *Eur. Food Res.*, 227(3), 649-665.

Martín, I., García, T., Fajardo, V., Rojas, M., Pegels, N., and Hernández, P. E., 2009, SYBR-green Real-time PCR Approach for The Detection and Quantification of Pig DNA in Feedstuffs, *J. Meat Sci.*, 82(2), 252–259.

Martin, R., 1996, *Gel Electrophoresis: Nucleic Acids*, Bios Scientific Publisher, Oxford.

Matsunaga, K., Chikuni, R., Tanabe, S., Muroya, K., Shibata, J., Yamada, Y., and Shimura, 1999, A Quick and Simple Method for The Identification of Meat Species and Meat Products by PCR Assay, *J. Meat Sci.*, 51, 143–148.

Montiel-Sosa, J. F., Ruiz-Pesini, E., Montoya, J., Roncalés, P., López- Pérez, M. J., and Pérez-Martos, A., 2000, Direct and Highly Species-specific Detection of Pork Meat and Fat in Meat Products by PCR amplification of Mitochondrial DNA, *J. Agr. Food Chem.*, 48, 2829–2832.

Montowska, M., and Pospiech, E., 2007, Species Identification of Meat by Electrophoretic Methods, *Acta Sci. Pol. Technol Aliment.*, 6(1), 5-16.



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Mulyana, Y., 2010, Analisis Cemaran Daging Babi Pada Kornet Sapi Di Wilayah Ciputat dengan Menggunakan Metode Polymerase Chain Reaction (PCR), *Skripsi*, Prodi Farmasi Fakultas Kedokteran dan Ilmu Kesehatan UIN Syarif Hidayatullah, Jakarta.

Murugaiah, C., Noor, Z. M., Mastakim, M., Bilung, L. M., Selamat, J., and Radu, S., 2009, Meat Species Identification and Halal Authentication Analysis using Mitochondrial DNA, *J. Meat Sci.*, 83(1), 57-61.

Nakyinsige, K., Che Man, Y. B., & Sazili, A. Q., 2012, Halal Authenticity Issues in Meat and Meat Products. *J. Meat Sci.*, 91(3), 207–214.

Nelson, D. L. and Cox, M. M., 2004, *Lehninger: Principles of Biochemistry*, 4th Edition, W. H. Freeman Publishers, New York.

Newton, C. R. and Graham, 1997, *PCR, Part I: Basic Principles and Methods*, EngBios Scientific Publishers, Oxford.

Nicholl D. S. T., 2008, *An Introduction to Genetic Engineering*, Third Edition, Cambridge University Press, New York.

Nollet, L. M. L. and Toldra, F., 2011, *Safety Analysis of Foods of Animal Origin*, CRC Press, New York.

Nurjuliana, M., Che Man, Y. B., Mat Hashim, D., and Mohamed, A. K. S., 2011, Rapid Identification of Pork for Halal Authentication using The Electronic Nose and Gas Chromatography Mass Spectrometer with Headspace Analyzer, *J. Meat Sci.*, 88(4), 638–644.

Patria, F. P., 2014, Analisis Kandungan Daging Tikus dalam Bakso Menggunakan Metode Polymerase Chain Reaction (PCR) Primer Spesifik Gen ND1 DNA Mitokondria, *Skripsi*, Jurusan Kimia FMIPA UGM, Yogyakarta.

Prado, M., Fumie`re, O., Boix, A., Marien, A., Berben, G., and von Holst, C., 2009, Novel Approach for Interlaboratory Transfer of Real-time PCR Methods: Detecting Bovine Meat and Bone Meal in Feed, *Anal. Bioanal. Chem.*, 394(5), 1423-1431.

Rahman, M. M., Ali, M. E., Hamid, S. B., Mustafa, S., Hashim, U., and Hanapi, U. K., 2014, Polymerase Chain Reaction Assay Targeting Cytochrome b



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Gene for The Detection of Dog Meat Adulteration in Meatball Formulation, *J. Meat Sci.*, 97(4), 404–409.

Reece, R. J., 2004, *Analysis of Genes and Genomes*, John Wiley and Sons, Ltd, England, 153-55, 159.

Riaz, M. N., and Chaudry, M. M., 2004, *Halal food production*, Boca Raton, FL: CRC Press.

Rodriguez, M. A., Garcia, T., Gonzlez, I., Asensio, L., Hernandez, P. E., and Martin, R., 2004, PCR Identification of Beef, Sheep, Goat, and Pork in Raw and Heat-Treated Meat Mixtures, *J. Food Prot.*, 67, 172–177.

Rohman, A., and Che Man, Y. B., 2009, Analysis of Cod-liver Oil Adulteration using Fourier Transform Infrared (FTIR) Spectroscopy, *J. Am. Oil Chem. Soc.*, 86(12), 1149–1153.

Rohman, A., Sismindari Erwanto, Y., and Che Man, Y. B., 2011, Analysis of Pork Adulteration in Beef Meatball using Fourier Transform Infrared (FTIR) Spectroscopy, *J. Meat Sci.*, 88(1), 91–95.

Rojas, M., Gonza'lez, I., Fajardo, V., Marti'n, I., Herna'ndez, P. E., and Garc'a, T., 2009b, Authentication of Meats from Quail (*Coturnix coturnix*), Pheasant (*Phasianus colchicus*), Partridge (*Alectoris spp*), and Guinea fowl (*Numida meleagris*) using Polymerase Chain Reaction Targeting Specific Sequences from The Mitochondrial 12S rRNA Gene, *Food Control*, 20(10), 896-902.

Saiki, R. K., Gelfand, D. H., Stottel, S., Schurl, S., Higusi, R., Horn, G. T., Mullis, K. B., and Erlich, H. A., 1988, Primer-Directed Enzymatic Amplification of DNA with a Thermostable DNA Polymerase, *J. Sci.*, 239, 487-491.

Sambrook, J., Russell, D. W., 2001, *Molecular Cloning: A Laboratory Manual*, 3rd Ed, Cold Spring Harbor Laboratory Press, New York.

Soares, S., Amaral, J. S., Mafra, I., and Oliveira, M. B. P. P., 2010, Quantitative Detection of Poultry Meat Adulteration with Pork by a Duplex PCR Assay, *J. Meat Sci.*, 85(3), 531–536.



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Stirtzel, S., Andree, S., Seuss-Baum, I., and Schwagele, F., 2007, Authentification of The Most Common Poultry Species by Means of PCR, *Fleischwirtschaft*, 87(6), 86-89.

Syahruni, R., 2013, Analisis DNA pada Burger Menggunakan Real-Time PCR (Polymerase Chain Reaction), *Tesis*, Fakultas Farmasi UGM, Yoyakarta.

Tampubolon, I. O., 2013, Validasi Uji Kontaminasi Babi dalam Nugget dengan Metode Real-Time Polymerase Chain Reaction (Rti-PCR), *Skripsi*, Jurusan Kimia FMIPA UGM, Yogyakarta.

Tobe, S. S., and Linacre, A. M. T., 2008, A Multiplex Assay to Identify 18 European Mammal Species from Mixtures using The Mitochondrial Cytochrome B Gene, *Electrophoresis*, 29(2), 340-347.

Vandendriessche, F., 2008, Meat Products in The Past, Today and in The Future, *J. Meat Sci.*, 78(1–2), 104–113.

Van der Spiegel, M., van der Fels-Klerx, H. J., Sterrenburg, P., van Ruth, S. M., Scholtens-Toma, I. M. J., and Kok, E. J., 2012, Halal Assurance in Food Supply Chains: Verification of Halal Certificates using Audits and Laboratory Analysis, *Trends Food Sci. Tech.*, 27(2), 109–119.

Walker, J. M. and Rapley, R., 2009, *Molecular Biology and Biotechnology*, 5th Ed., RSC Publishing, United Kingdom.

Watson, J. D. and Crick, F. H. C., 1953, A Structure for Deoxyribose Nucleic Acid, *Nature*, 171, 737-738.

Weaver, F. R., 2004, *Molecular Biology*, 2nd Ed., The McGraw-Hill, Kansas.

Wiesner, R. J., Ruegg, J.C. and Morano, I., 1992, Counting Target Molecules by Exponential Polymerase Chain Reaction, Copy Number of Mitochondrial DNA in Rat Tissues, *J. Biochem. Biophys. Acta.*, 183, 553-559.

Ziegler, P., 2007, Germany still a developing country? The halal label booms in the world market, *Fleischwirtschaft*, 87(9), 29-32.