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DAFTAR PUSTAKA

Acquarone, C., Buera, P. & Elizalde, B. 2007. Pattern of pH and electrical conductivity upon honey dilution as a complementary tool for discriminating geographical origin of honeys. *Food Chemistry*, 101(2): 695–703.

Adams, C.J., Boult, C.H., Deadman, B.J., Farr, J.M., Grainger, M.N.C., Manley-Harris, M. & Snow, M.J. 2008. Isolation by HPLC and characterisation of the bioactive fraction of New Zealand manuka (Leptospermum scoparium) honey. *Carbohydrate Research*, 343(4): 651–659.

Adams, C.J., Manley-Harris, M. & Molan, P.C. 2009. The origin of methylglyoxal in New Zealand manuka (Leptospermum scoparium) honey. *Carbohydrate Research*, 344(8): 1050–1053.

Ahmad, R.S., Hussain, M.B., Saeed, F., Waheed, M. & Tufail, T. 2017. Phytochemistry, metabolism, and ethnomedical scenario of honey: A concurrent review. *International Journal of Food Properties*, 20(1): S254–S269. Tersedia di https://doi.org/10.1080/10942912.2017.1295257.

Ajtony, Z., Bencs, L., Haraszi, R., Szigeti, J. & Szoboszlai, N. 2007. Study on the simultaneous determination of some essential and toxic trace elements in honey by multi-element graphite furnace atomic absorption spectrometry. *Talanta*, 71(2): 683–690.

Al-Mamary, M., Al-Meeri, A. & Al-Habori, M. 2002. Antioxidant activities and total phenolics of different types of honey. *Nutrition Research*, 22(9): 1041–1047.

Ak-Waili, N. S. (2003). Effects of Daily Consumption of Honey Solution on Hematological Indices and Blood Levels of Minerals and Enzymes in

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Normal Individuals. *Journal of Medicinal Food*, *6*(2). https://doi.org/10.1016/0006-3207(72)90131-0

Al, M.L., Daniel, D., Moise, A., Bobis, O., Laslo, L. & Bogdanov, S. 2009. Physico-chemical and bioactive properties of different floral origin honeys from Romania. *Food Chemistry*, 112(4): 863–867.

Albaridi, N.A. 2019. Antibacterial Potency of Honey. *International Journal of Microbiology*, 2019.

Aliferis, K.A., Tarantilis, P.A., Harizanis, P.C. & Alissandrakis, E. 2010. Botanical discrimination and classification of honey samples applying gas chromatography/mass spectrometry fingerprinting of headspace volatile compounds. *Food Chemistry*, 121(3): 856–862. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2009.12.098.

Aljadi, A.M. & Kamaruddin, M.Y. 2004a. Evaluation of the phenolic contents and antioxidant capacities of two Malaysian floral honeys. *Food Chemistry*, 85(4): 513–518.

Aljadi, A.M. & Kamaruddin, M.Y. 2004b. Evaluation of the phenolic contents and antioxidant capacities of two Malaysian floral honeys. *Food Chemistry*, 85(4): 513–518.

Allen, K.L., Molan, P.C. & Reid, G.M. 1991. A survey of the antibacterial activity of some New Zealand honeys. *The Journal of pharmacy and pharmacology*, 43(12): 817–822.

Alqarni, A.S., Owayss, A.A. & Mahmoud, A.A. 2016. Physicochemical characteristics, total phenols and pigments of national and international honeys in Saudi Arabia. *Arabian Journal of Chemistry*, 9(1): 114–120. Tersedia di http://dx.doi.org/10.1016/j.arabjc.2012.11.013.

Alqarni, A.S., Owayss, A.A., Mahmoud, A.A. & Hannan, M.A. 2014. Mineral content and physical properties of local and imported honeys in Saudi

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Arabia. *Journal of Saudi Chemical Society*, 18(5): 618–625.

Alvarez-Suarez, J., Gasparrini, M., Forbes-Hernández, T., Mazzoni, L. & Giampieri, F. 2014. The Composition and Biological Activity of Honey: A Focus on Manuka Honey. *Foods*, 3(3): 420–432. Tersedia di http://www.mdpi.com/2304-8158/3/3/420/.

Alvarez-Suarez, J.M., Tulipani, S., Díaz, D., Estevez, Y., Romandini, S., Giampieri, F., Damiani, E., Astolfi, P., Bompadre, S. & Battino, M. 2010a. Antioxidant and antimicrobial capacity of several monofloral Cuban honeys and their correlation with color, polyphenol content and other chemical compounds. *Food and Chemical Toxicology*, 48(8–9): 2490–2499. Tersedia di http://dx.doi.org/10.1016/j.fct.2010.06.021.

Alvarez-Suarez, J.M., Tulipani, S., Romandini, S., Bertoli, E. & Battino, M. 2010b. Contribution of honey in nutrition and human health: A review. *Mediterranean Journal of Nutrition and Metabolism*, 3(1): 15–23.

Alvarez-Suarez, J.M., Tulipani, S., Romandini, S., Vidal, A. & Battino, M. 2009. Methodological aspects about determination of phenolic compounds and in vitro evaluation of antioxidant capacity in the honey: A review. *Current Analytical Chemistry*, 5(4): 293–302.

Alves, A., Ramos, A., Gonçalves, M.M., Bernardo, M. & Mendes, B. 2013a. Antioxidant activity, quality parameters and mineral content of Portuguese monofloral honeys. *Journal of Food Composition and Analysis*, 30(2): 130–138.

Alves, A., Ramos, A., Gonçalves, M.M., Bernardo, M. & Mendes, B. 2013b. Antioxidant activity, quality parameters and mineral content of Portuguese monofloral honeys. *Journal of Food Composition and Analysis*, 30(2): 130–138.

Anastasiadi, M., Zira, A., Magiatis, P., Haroutounian, S.A., Skaltsounis, A.L. & Mikros, E. 2009. H NMR-based metabonomics for the classification of Greek wines according to variety, region, and vintage. comparison with

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

HPLC data. *Journal of Agricultural and Food Chemistry*, 57(23): 11067–11074.

Andersen, Ø.M. & Markham, K.R. ed., 2006. *Flavonoids chemistry, biochemistry and applications. In Separation and quantification of flavonoid*. New York: Taylor & Francis.

Anguebes, F., Pat, L., Ali, B., Guerrero, A., Córdova, A. V., Abatal, M. & Garduza, J.P. 2016. Application of multivariable analysis and FTIR-ATR spectroscopy to the prediction of properties in campeche honey. *Journal of Analytical Methods in Chemistry*, 2016.

Anjos, O., Campos, M.G., Ruiz, P.C. & Antunes, P. 2015a. Application of FTIR-ATR spectroscopy to the quantification of sugar in honey. *Food Chemistry*, 169(July): 218–223. http://dx.doi.org/10.1016/j.foodchem.2014.07.138.

Anjos, O., Campos, M.G., Ruiz, P.C. & Antunes, P. 2015b. Application of FTIR-ATR spectroscopy to the quantification of sugar in honey. *Food Chemistry*, 169(July): 218–223. http://dx.doi.org/10.1016/j.foodchem.2014.07.138.

Anklam, E. 1998. A review of the analytical methods to determine the geographical and botanical origgin of honey. *Elsevier*, 63(4): 549–562.

AOAC Official Method 977.20, 1977, Separation of Sugars in Honey, Liquid Chromatographic Method, JAOAC, 60, 838

Arvanitoyannis, I.S., Chalhoub, C., Gotsiou, P., Lydakis-Simantiris, N. & Kefalas, P. 2005. Novel Quality Control Methods in Conjunction with Chemometrics ... *Critical Reviews in Food Science and Nutrition*, (45): 193–203.

Asha'Ari, Z.A., Ahmad, M.Z., Wan Din, W.S.J., Che Hussin, C.M. & Leman, I. 2013. Ingestion of honey improves the symptoms of allergic rhinitis: Evidence from a randomized placebo-controlled trial in the East Coast of Peninsular Malaysia. *Annals of Saudi Medicine*, 33(5): 469–475.

Aubert S., Gonnet M. (1983) Mesure de la couleur des miels, Apidologie 14, 105–118

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Avula, B., Smillie, T.J., Wang, Y.H., Zweigenbaum, J. & Khan, I.A. 2015. Authentication of true cinnamon (Cinnamon verum) utilising direct analysis in real time (DART)-QToF-MS. *Food Additives and Contaminants - Part A Chemistry, Analysis, Control, Exposure and Risk Assessment*, 32(1): 1–8.

Bacci, M., Porcinai, S. & Radicati, B. 1997. Principal component analysis of near-infrared spectra of alteration products in calcareous samples. *Applied Spectroscopy*, 51(5): 700–706.

Baiano, A. & Del Nobile, M.A. 2016. Antioxidant Compounds from Vegetable Matrices: Biosynthesis, Occurrence, and Extraction Systems. *Critical Reviews in Food Science and Nutrition*, 56(12): 2053–2068.

Baroni, M.V., Arrua, C., Nores, M.L., Fayé, P., Díaz, M. del P., Chiabrando, G.A. & Wunderlin, D.A. 2009. Composition of honey from Córdoba (Argentina): Assessment of North/South provenance by chemometrics. *Food Chemistry*, 114(2): 727–733. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2008.10.018.

Bashkaran, K., Zunaina, E., Bakiah, S., Sulaiman, S.A., Sirajudeen, K. & Naik, V. 2011. Anti-inflammatory and antioxidant effects of Tualang honey in alkali injury on the eyes of rabbits: experimental animal study. *BMC complementary and alternative medicine*, 11: 90.

Batista, B.L., da Silva, L.R.S., Rocha, B.A., Rodrigues, J.L., Berretta-Silva, A.A., Bonates, T.O., Gomes, V.S.D., Barbosa, R.M. & Barbosa, F. 2012. Multi-element determination in Brazilian honey samples by inductively coupled plasma mass spectrometry and estimation of geographic origin with data mining techniques. *Food Research International*, 49(1): 209–215. Tersedia di http://dx.doi.org/10.1016/j.foodres.2012.07.015.

Beitlich, N., Lübken, T., Kaiser, M., Ispiryan, L. & Speer, K. 2016. Fluorescent Pteridine Derivatives as New Markers for the Characterization of Monofloral Genuine New Zealand Manuka (Leptospermum scoparium) Honey.

UNIVERSITAS
GADJAH MADA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Belitz, H, D., Grosch, W., & Schieberle, P. 2009. Sugars, Sugar Alcohols and Honey. In *Food Chemistry* (4th ed., p. 883). Springer-Verlag. https://doi.org/10.1017/CBO9781107415324.004

Bell, L. N., & Labuza, T. P. (1992). Compositional Influence on the pH of Reduced-Moisture Solutions. *Journal of Food Science*, *57*(3), 732–734. https://doi.org/10.1111/j.1365-2621.1992.tb08083.x

Berg, van denA.J.J., van den Worm, E., Quarles van Ufford, H.C., Halkes, S.B.A., Hoekstra, M.J. & Beukelman, C.J. 2008. An *in vitro* examination of the antioxidant and anti-inflammatory properties of buckwheat honey. *Journal of Wound Care*, 17(4): 172–178. http://www.magonlinelibrary.com/doi/10.12968/jowc.2008.17.4.28839.

Beretta, G., Granata, P., Ferrero, M., Orioli, M., & Facino, R. M. 2005. Standardization of antioxidant properties of honey by a combination of spectrophotometric/fluorimetric assays and chemometrics. *Analytica Chimica Acta*, *533*(2), 185–191. https://doi.org/10.1016/j.aca.2004.11.010

Berrueta, L.A., Alonso-Salces, R.M. & Héberger, K. 2007. Supervised pattern recognition in food analysis. *Journal of Chromatography A*, 1158(1–2): 196–214.

Bertelli, D., Lolli, M., Papotti, G., Bortolotti, L., Serra, G. & Plessi, M. 2010. Detection of honey adulteration by sugar syrups using one-dimensional and two-dimensional high-resolution nuclear magnetic resonance. *Journal of Agricultural and Food Chemistry*, 58(15): 8495–8501.

Bertoncelj, J., Doberšek, U., Jamnik, M. & Golob, T. 2007. Evaluation of the phenolic content, antioxidant activity and colour of Slovenian honey. *Food Chemistry*, 105(2): 822–828.

Boffo, E.F., Tavares, L.A., Tobias, A.C.T., Ferreira, M.M.C. & Ferreira, A.G. 2012a. Identification of components of Brazilian honey by 1H NMR and classification of its botanical origin by chemometric methods. *LWT - Food Science and Technology*, 49(1): 55–63.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Boffo, E.F., Tavares, L.A., Tobias, A.C.T., Ferreira, M.M.C. & Ferreira, A.G. 2012b. Identification of components of Brazilian honey by 1H NMR and classification of its botanical origin by chemometric methods. *LWT - Food Science and Technology*, 49(1): 55–63.

Boffo, E.F., Tavares, L.A., Tobias, A.C.T., Ferreira, M.M.C. & Ferreira, A.G. 2012c. Identification of components of Brazilian honey by 1H NMR and classification of its botanical origin by chemometric methods. *LWT - Food Science and Technology*, 49(1): 55–63.

Bogdanov, Stefan; Ruoff, Kaspar; Persano Oddo, L. 2004. Physico-chemical methods for the characterisation of monofloral honeys: a review. *Apidologie*, 35: s4–s17.

Bogdanov, S. 1997a. Antibacterial substances in honey. *Most*, (8): 1–10.

Bogdanov, S. 1997b. Nature and origin of the antibacterial substances in honey. *LWT - Food Science and Technology*, 30(7): 748–753.

Bogdanov, S. 1997c. Nature and Origin of the Antibacterial Substances in Honey. *LWT - Food Science and Technology*, 30(7): 748–753. Tersedia di http://www.sciencedirect.com/science/article/pii/S0023643897902590.

Bogdanov, S. 2007. Authenticity of Honey and Other Bee Products: State of the Art. *Bulletin of University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca - Animal Science and Biotechnologies*, 64: 1–8.

Bogdanov, S. 2009a. Harmonised Methods of the International IHC. *Bee Product Science*, (5): 1–62.

Bogdanov, S. 2009b. Harmonized Methods of The International Honey Commision. *International Honey Commisison*.

Bogdanov, S., Haldimann, M., Luginbühl, W. & Gallmann, P. 2007a. Minerals in honey: environmental, geographical and botanical aspects. *Journal of Apicultural Research*, 46(4): 269–275. http://www.tandfonline.com/doi/abs/10.1080/00218839.2007.11101407.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Bogdanov, S., Haldimann, M., Luginbühl, W. & Gallmann, P. 2007b. Minerals in honey: Environmental, geographical and botanical aspects. *Journal of Apicultural Research*, 46(4): 269–275.

Bogdanov, S. & Martin, P. 2002a. Honey Authenticity : a Review. *Swiss Bee Research Centre*, 1–20.

Bogdanov, S. & Martin, P. 2002b. Honey authenticity: a review. *Mitt. Lebensm. Hyg*,1–20. http://www.beehexagon.net/files/file/fileE/Honey/AuthenticityRevue_Internet.pdf.

Bogdanova, S., Ruoff, K. & Oddo, L.P. 2004. Physicochemical methods for the characterisation of monofloral honeys : a review. *Apidologie*, 35: 4–17.

Borchardt, R.T., Keller, B.T. & Patel-Thombre, U. 1984. Neplanocin a potent inhibitor of s-adenosylhomocysteine hydrolase and of vaccinia virus multiplication in mouse l929 cells*. *The Journal of Biological Chemistry*, 259(7): 4353–4358.

Boussaid, A., Chouaibi, M., Rezig, L., Hellal, R., Donsì, F., Ferrari, G. & Hamdi, S. 2018. Physicochemical and bioactive properties of six honey samples from various floral origins from Tunisia. *Arabian Journal of Chemistry*, 11(2): 265–274.

Braeken, J. & Van Assen, M.A.L.M. 2017. An empirical Kaiser criterion. *Psychological Methods*, 22(3): 450–466.

Brereton, richard g 2007. Applied Chemometrics for Scientists. West Sussex: John Wiley & Sons Ltd.

Bueno-Costa, F.M., Zambiazi, R.C., Bohmer, B.W., Chaves, F.C., Silva, W.P. da, Zanusso, J.T. & Dutra, I. 2016. Antibacterial and antioxidant activity of honeys from the state of Rio Grande do Sul, Brazil. *LWT - Food Science and Technology*, 65: 333–340.

Buratti, S., Benedetti, S. & Cosio, M.S. 2007. Evaluation of the antioxidant power

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

of honey, propolis and royal jelly by amperometric flow injection analysis. *Talanta*, 71(3): 1387–1392.

Cabras, P., Angioni, A., Tuberoso, C., Floris, I., Reniero, F., Guillou, C. & Ghelli, S. 1999. Homogentisic acid: A phenolic acid as a marker of strawberry-tree (Arbutus unedo) honey. *Journal of Agricultural and Food Chemistry*, 47(10): 4064–4067.

Pita-Calvo, C., & Vázquez, M. (2017). Differences between honeydew and blossom honeys: a review. *Trends in Food Science & Technology*, *59*, 79–87. https://doi.org/https://doi.org/10.1016/j.tifs.2016.11.015

Carcea, M. 2011. Legal aspects and analytical solutions. (November).

Castaldo, S. & Capasso, F. 2002. Propolis, an old remedy used in modern medicine. *Fitoterapia*, 73(SUPPL. 1): 1–6.

CEC. 2001. Commission Regulation (EC) No 110/2001. *Official Journal of the European Communities*, 2000–2001.

Chakir, A., Romane, A., Marcazzan, G.L. & Ferrazzi, P. 2011. Physicochemical properties of some honeys produced from different plants in Morocco. *Arabian Journal of Chemistry*, 9: S946–S954. http://dx.doi.org/10.1016/j.arabjc.2011.10.013.

Chan, C.W., Deadman, B.J., Manley-Harris, M., Wilkins, A.L., Alber, D.G. & Harry, E. 2013. Analysis of the flavonoid component of bioactive New Zealand mānuka (Leptospermum scoparium) honey and the isolation, characterisation and synthesis of an unusual pyrrole. *Food Chemistry*, 141(3): 1772–1781. http://dx.doi.org/10.1016/j.foodchem.2013.04.092.

Chataway, H.D. 1932. The Determination of Moisture in Honey. *Canadian Journal of Research*, 6(5): 532–547.

Chayati, I. (2008). Sifat fisikokimia madu monoflora dari daerah istimewa yogyakarta dan jawa tengah. *Agritech*, *28*(1), 9–14.

Chen, L., Mehta, A., Berenbaum, M., Zangerl, A.R. & Engeseth, N.J. 2000. Honeys from different floral sources as inhibitors of enzymatic browning in

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

fruit and vegetable homogenates. *Journal of Agricultural and Food Chemistry*, 48(10): 4997–5000.

Chen, L., Wang, J., Ye, Z., Zhao, J., Xue, X., Heyden, Y. Vander & Sun, Q. 2012. Classification of Chinese honeys according to their floral origin by near infrared spectroscopy. *Food Chemistry*, 135(2): 338–342. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2012.02.156.

Cherchi, A., Spanedda, L., Tuberoso, C. & Cabras, P. 1994. Solid-phase extraction and high-performance liquid chromatographic determination of organic acids in honey. *Journal of Chromatography A*, 669(1–2): 59–64.

Chin, N. L., & Sowndhararajan, K. .2020. A Review on Analytical Methods for Honey Classification, Identification and Authentication. *IntechOpen*, 1–34. https://doi.org/http://dx.doi.org/10.5772/57353

Cianciosi, D., Forbes-Hernández, T.Y., Afrin, S., Gasparrini, M., Reboredo-Rodriguez, P., Manna, P.P., Zhang, J., Lamas, L.B., Flórez, S.M., Toyos, P.A., Quiles, J.L., Giampieri, F. & Battino, M. 2018. Phenolic compounds in honey and their associated health benefits: A review. *Molecules*, 23(9): 1–20.

Ciulu, M., Spano, N., Pilo, M. I., & Sanna, G. 2016. Recent Advances in the Analysis of Phenolic Compounds in Monofloral Honeys. *Molecules*, *21*(4). https://doi.org/10.3390/molecules21040451

Clermont, A., Eickermann, M., Kraus, F., Hoffmann, L. & Beyer, M. 2015. Correlations between land covers and honey bee colony losses in a country with industrialized and rural regions. *Science of the Total Environment*, 532: 1–13. Tersedia di http://dx.doi.org/10.1016/j.scitotenv.2015.05.128.

CLSI, Clinical and Laboratory Standards Institute (2012). *Performance standards for antimicrobial disk susceptibility tests: Approved standard - Eleventh edition* (Vol. 32, Issue 1). https://doi.org/M02-A11

Colucci, G., De Vito, V., Varrichchio, E., De Cunzo, F., Coccia, E., Paolucci, M., Di Stasio, M., Boscaino, F., Viola, C. & Volpe, M. 2016. Identification of

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Traceability Markers in Italian Monofloral Honeys of different Botanical Origin. *Journal of Nutrition & Food Sciences*, 06(01): 1–10.

Cook, N.. & Samman, S. 1996. *Flavonoids- Chemistry, metabolism, cardio protective effects, and dietary sources*. *Journal Nutritional Biochemistry*, .

Corbella, E. & Cozzolino, D. 2006. Classification of the floral origin of Uruguayan honeys by chemical and physical characteristics combined with chemometrics. *LWT - Food Science and Technology*, 39(5): 534–539.

Cotte JF, Casabianca H, Giroud B, Albert M, Lheritier J, Grenier-Loustalot MF. 2004. Characterization of honey amino acid profiles using high-pressure liquid chromatography to control authenticity. Anal Bioanal Chem 378:1342–50.

Cuyckens, F. & Claeys, M. 2004. Mass spectrometry in the structural analysis of flavonoids. *Journal of Mass Spectrometry*, 39(1): 1–15.

Da Costa Leite, J.M., Trugo, L.C., Costa, L.S.M., Quinteiro, L.M.C., Barth, O.M., Dutra, V.M.L. & De Maria, C.A.B. 2000. Determination of oligosaccharides in Brazilian honeys of different botanical origin. *Food Chemistry*, 70(1): 93–98.

Danezis, G.P., Tsagkaris, A.S., Camin, F., Brusic, V. & Georgiou, C.A. 2016. Food authentication: Techniques, trends & emerging approaches. *TrAC Trends in Analytical Chemistry*.

Daniels, B.J., Prijic, G., Meidinger, S., Loomes, K.M., Stephens, M., Schlothauer, R.C., Furkert, D.P. & Brimble, M.A. 2016. Isolation , Structural Elucidation and Synthesis of Lepteridine from M # nuka Honey Isolation , Structural Elucidation and Synthesis of Lepteridine From Mānuka (Leptospermum scoparium) Honey.

David Garson, G. 2014. *Logistic Regression:Binary and Multinomial*. Tersedia di www.statisticalassociates.com.

Derde, M.P. & Massart, D.L. 1988. Comparison of the performance of the class

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

modelling techniques UNEQ, SIMCA, and PRIMA. *Chemometrics and Intelligent Laboratory Systems*, 4(1): 65–93.

Del Nozal, M. J., Bernal, J. L., Marinero, P., Diego, J. C., Frechilla, J. I., Higes, M., & Llorente, J. (1998). High performance liquid chromatographic determination of organic acids in honeys from different botanical origin. *Journal of Liquid Chromatography and Related Technologies*, *21*(20), 3197–3214. https://doi.org/10.1080/10826079808001268

Devillers, J., Morlot, M., Pham-Delègue, M.H. & Doré, J.C. 2004. Classification of monofloral honeys based on their quality control data. *Food Chemistry*, 86(2): 305–312.

Diacu, E., & Tantaveanu, E. F. (2007). Determination of moisture content and its correlation with other parameters in honey quality control. *Revista de Chimie*, *58*(12), 1310–1312.

Donarski, J.A., Jones, S.A., Harrison, M., Driffield, M. & Charlton, A.J. 2010. Identification of botanical biomarkers found in Corsican honey. *Food Chemistry*, 118(4): 987–994.

Downey, G., Abbas, O., Amaral, J., Amin, I., & Baeten, V. (2016). Advances in Food Authenticity Testing. In G. Downey (Ed.), *Advances in Food Authenticity Testing*. Elsevier Ltd. https://doi.org/10.1016/B978-0-08-100220-9.00001-1

Dunn, W.B. & Ellis, D.I. 2005. Metabolomics: Current analytical pelatforms and methodologies. *TrAC - Trends in Analytical Chemistry*, 24(4): 285–294.

El-Haskoury, R., Kriaa, W., Lyoussi, B. & Makni, M. 2018. Ceratonia siliqua honeys from Morocco: Physicochemical properties, mineral contents, and antioxidant activities. *Journal of Food and Drug Analysis*, 26(1): 67–73. Tersedia di http://dx.doi.org/10.1016/j.jfda.2016.11.016.

Erejuwa, O. O., Sulaiman, S. A., Wahab, M. S., Sirajudeen, K. N. S., Salleh, M. S. M. D., & Gurtu, S. (2010). Antioxidant protection of Malaysian tualang

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

honey in pancreas of normal and streptozotocin-induced diabetic rats. *Annales d'Endocrinologie*, *71*(4), 291–296. https://doi.org/10.1016/j.ando.2010.03.003

Escriche, I., Kadar, M., Juan-borrás, M., & Domenech, E. 2011. Using fl avonoids , phenolic compounds and headspace volatile pro fi le for botanical authentication of lemon and orange honeys. *FRIN*, *44*(5), 1504–1513. https://doi.org/10.1016/j.foodres.2011.03.049

Escuredo, O., Dobre, I., Fernández-González, M. & Seijo, M.C. 2014. Contribution of botanical origin and sugar composition of honeys on the crystallization phenomenon. *Food Chemistry*, 149: 84–90. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2013.10.097.

Escuredo, O., Fernández-González, M., Rodríguez-Flores, M.S., Seijo-Rodríguez, A. & Seijo-Coello, M.C. 2013a. Influence of the Botanical Origin of Honey from North Western Spain in Some Antioxidant Components. *Journal of Apicultural Science*, 57(1): 5–14, http://www.degruyter.com/view/j/jas.2013.57.issue-1/jas-2013-0001/jas-2013-0001.xml.

Escuredo, O., Míguez, M., Fernández-González, M. & Carmen Seijo, M. 2013b. Nutritional value and antioxidant activity of honeys produced in a European Atlantic area. *Food Chemistry*, 138(2–3): 851–856. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2012.11.015.

Estevinho, L., Pereira, A.P., Moreira, L., Dias, L.G. & Pereira, E. 2008. Antioxidant and antimicrobial effects of phenolic compounds extracts of Northeast Portugal honey. *Food and Chemical Toxicology*, 46(12): 3774–3779. Tersedia di http://dx.doi.org/10.1016/j.fct.2008.09.062.

EU Council directive 2001/110EC. 2002. Official Journal of the European, Communities, L10, 47–52

Evahelda, E., Pratama, F., Malahayati, N., & Santoso, B. (2017). Sifat Fisik dan Kimia Madu dari Nektar Pohon Karet di Kabupaten Bangka Tengah ,

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Indonesia Physical and Chemical Characteristics of Honey from Rubber Tree Nektar in Central Bangka Regency , Indonesia. *Agritech*, *37*(4), 363–368.

Everstine, K., Spink, J. & Kennedy, S. 2013. Economically motivated adulteration (EMA) of food: Common characteristics of EMA incidents. *Journal of Food Protection*, 76(4): 723–735.

Fakhimzadeh, K. & Lodenius, M. 2000. Honey, Pollen and Bees as Indicator of Metal Pollution. *Acta Universitatis Carolinae Environmentalica*, 14: 13–20.

FAO/WHO 2019. Standar For Honey CXS 12-1981. *Codex Alimentarius International Food Standards*, 8(5): 55.

FAO 2000. On definitions of forest and forest change. FRA Working Paper No. 33. Rome.

FDA, U. 2012. Chapter 9 - Federal Food, Drug, And Cosmetic Act Subchapter Iv - Food Sec. 342 - Adulterated food. United States Code, 2006 Edition, Supplement 5, Title 21 - Food And Drugs, Washington, DC.

Fernández-Torres, R., Pérez-Bernal, J.L., Bello-López, M.Á., Callejón-Mochón, M., Jiménez-Sánchez, J.C. & Guiraúm-Pérez, A. 2005. Mineral content and botanical origin of Spanish honeys. *Talanta*, 65(3): 686–691.

Ferreira, I.C.F.R., Aires, E., Barreira, J.C.M. & Estevinho, L.M. 2009. Antioxidant activity of Portuguese honey samples: Different contributions of the entire honey and phenolic extract. *Food Chemistry*, 114(4): 1438–1443. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2008.11.028.

Ferreres, F., Tomás-Barberán, F., Soler, C., García-Viguera, C., Ortiz, A. & Tomás-Lorente, F. 1994. A simple extractive technique for honey flavonoid HPLC analysis. *Apidologie*, 2: 21–30.

Ferrero-Miliani, L., Nielsen, O.H., Andersen, P.S. & Girardin, S.E. 2007. Chronic inflammation: Importance of NOD2 and NALP3 in interleukin-1β generation. *Clinical and Experimental Immunology*, 147(2): 227–235.

Field, A. 2009. *Discovering Statistics Using SPSS*. 2 ed. London: SAGE

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Publications Inc.

FSA 2009. The Food Safety Act 1990 – a Guide for Food Businesses. *Food Standards Agency*, 28. https://www.food.gov.uk/sites/default/files/multimedia/pdfs/fsactguide.pdf.

Fulmer, G.R., Miller, A.J.., Sherden, N.H. & E, H. 2010. NMR Chemical Shifts of Trace Impurities: Common Laboratory Solvents, Organics, and Gases in Deuterated Solvents Relevant to the Organometallic Chemist. *organometallics*, 29: 2176–2179.

Gallardo-Velázquez, T., Osorio-Revilla, G., Loa, M.Z. de & Rivera-Espinoza, Y. 2009. Application of FTIR-HATR spectroscopy and multivariat analysis to the quantification of adulterants in Mexican honeys. *Food Research International*, 42(3): 313–318. Tersedia di http://dx.doi.org/10.1016/j.foodres.2008.11.010.

Gámbaro, A., Ares, G., Giménez, A. & Pahor, S. 2007. Preference mapping of color of Uruguayan honeys. *Journal of Sensory Studies*, 22(5): 507–519.

Gašić, U., Kečkeš, S., Dabić, D., Trifković, J., Milojković-Opsenica, D., Natić, M. & Tešić, Z. 2014. Phenolic profile and antioxidant activity of Serbian polyfloral honeys. *Food Chemistry*, 145: 599–607.

Geladi, P. & Kowalski, B.R. 1986. Partial Least-Squares Regression: A Tutorial. *Analytica Chimica Acta*, 185: 1–17.

Gheldof, N. & Engeseth, N.J. 2002. Antioxidant capacity of honeys from various floral sources based on the determination of oxygen radical absorbance capacity and inhibition of in vitro lipoprotein oxidation in human serum samples. *Journal of Agricultural and Food Chemistry*, 50(10): 3050–3055.

Gheldof, N., Wang, X.H. & Engeseth, N.J. 2002. Identification and quantification of antioxidant components of honeys from various floral sources. *Journal of Agricultural and Food Chemistry*, 50(21): 5870–5877.

Gheldof, N., Wang, X.H. & Engeseth, N.J. 2003. Buckwheat honey increases

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

serum antioxidant capacity in humans. *Journal of Agricultural and Food Chemistry*, 51(5): 1500–1505.

Giorgi, A., Madeo, M., Baumgartner, J. & Lozzia, G.C. 2011. The relationships between phenolic content, pollen diversity, physicochemical information and radical scavenging activity in honey. *Molecules*, 16(1): 336–347.

Golob, T., Doberšek, U., Kump, P. & Nečemer, M. 2005. Determination of trace and minor elements in Slovenian honey by total reflection X-ray fluorescence spectroscopy. *Food Chemistry*, 91(4): 593–600.

Gomes, S., Dias, L.G., Moreira, L.L., Rodrigues, P. & Estevinho, L. 2010. Physicochemical, microbiological and antimicrobial properties of commercial honeys from Portugal. *Food and Chemical Toxicology*, 48(2): 544–548. Tersedia di http://dx.doi.org/10.1016/j.fct.2009.11.029.

Gonzales, A.P., Burin, L. & Buera, M.D.P. 1999. Color changes during storage of honeys in relation to their composition and initial color. *Food Research International*, 32(3): 185–191.

Gonzalez-Miret, T., Terrab, A., Hernanz, D., Fernandez-Recamales, M.. & Heredia, F.. 2005. Multivariat Correlation between Color and Mineral Composition of Honeys and by Their Botanical Origin. 2574–2580.

Granato, D., Putnik, P., Kovačević, D.B., Santos, J.S., Calado, V., Rocha, R.S., Cruz, A.G. Da, Jarvis, B., Rodionova, O.Y. & Pomerantsev, A. 2018. Trends in Chemometrics: Food Authentication, Microbiology, and Effects of Processing. *Comprehensive Reviews in Food Science and Food Safety*, 17(3): 663–677.

Hapsoh, Gusmawartati, Nazaruddin, & Yansen, S. (2017). *Panen Lestari & Manfaat Madu Hutan* (Issue June).https://www.researchgate.net/publication/342144696

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Halagarda, M, Groth, S., Popek, P., Rohn, S., dan Pedan, V., 2020. Antioxidant Activity and Phenolic Profile of Selected Organic and Conventional Honeys from Poland. Antioxidants 2020, 9, 44; doi:10.3390/antiox9010044

Hallisumuran, B. 2005. Free Radicals and Other Reactive Species in Disease. *Encyclopedia of Life Sciences*, 1–7.

Han, S., Wang, J., Liu, Y., Zhou, Q., Lu, M. & Zhou, S. 2014. Determining Wine Authenticity: A Metabolomics Analysis Using UHPLC ESI/Q-TOF MS Application Note. 6. http://www.chem.agilent.com/Library/applications/5991-3335EN.pdf.

Harnly, J.M., Bhagwat, S. & Lin, L.Z. 2007. Profiling methods for the determination of phenolic compounds in foods and dietary supplements. *Analytical and Bioanalytical Chemistry*, 389(1): 47–61.

Haroun, M.I., Poyrazoglu, E.S., Konar, N. & Artik, N. 2012. Phenolic Acids and Flavonoids Profiles of Some Turkish Honeydew and Floral Honeys. *Journal of Food Technology*, 10(2): 39–45.

Hatzakis, E. 2019. Nuclear Magnetic Resonance (NMR) Spectroscopy in Food Science: A Comprehensive Review. *Comprehensive Reviews in Food Science and Food Safety*, 18(1): 189–220.

He, S., Gaça, M.D.A. & Walls, A.F. 1998. A role for tryptase in the activation of human mast cells: Modulation of histamine release by tryptase and inhibitors of tryptase. *Journal of Pharmacology and Experimental Therapeutics*, 286(1): 289–297.

He, S., Zhang, H., Zeng, X., Chen, D. & Yang, P. 2013. Mast cells and basophils are essential for allergies : mechanisms of allergic inflammation and a proposed procedure for diagnosis. *Nature Publishing Group*, 34(10): 1270–1283. Tersedia di http://dx.doi.org/10.1038/aps.2013.88.

Heldman, D.R. 2006. IFT and the food science profession. *Food Technology Magazine*, 60(10): 1–2.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Hermośın I, Chićon RM, Cabezudo MD. 2003. Free amino acid composition and botanical origin of honey. Food Chem 83:263–8

Hernández, O.M., Fraga, J.M.G., Jiménez, A.I., Jiménez, F. & Arias, J.J. 2005a. Characterization of honey from the Canary Islands: Determination of the mineral content by atomic absorption spectrophotometry. *Food Chemistry*, 93(3): 449–458.

Hernández, O.M., Fraga, J.M.G., Jiménez, A.I., Jiménez, F. & Arias, J.J. 2005b. Characterization of honey from the Canary Islands: Determination of the mineral content by atomic absorption spectrophotometry. *Food Chemistry*, 93(3): 449–458.

Hirano, T., Higa, S., Arimitsu, J., Naka, T., Shima, Y., Ohshima, S., Fujimoto, M., Yamadori, T., Kawase, I. & Tanaka, T. 2004. Flavonoids such as luteolin, fisetin and apigenin are inhibitors of interleukin-4 and interleukin-13 production by activated human basophils. *International Archives of Allergy and Immunology*, 134(2): 135–140.

Hosmer, D. W., & Lemeshow, S. (2000). *Applied Logistic Regression* (2nd Ed.). John Wiley & Sons Ltd.Idris, Y.M.A., Mariod, A.A. & Hamad, S.I. 2011. Physicochemical properties, phenolic contents and antioxidant activity of Sudanese honey. *International Journal of Food Properties*, 14(2): 450–458.

Iglesias, M.T., Martín-Alvarez, P.J., Polo, M.C., de Lorenzo, C., Gonzalez, M. & Pueyo, E. 2006. Changes in the free amino acid contents of honeys during storage at ambient temperature. *Journal of agricultural and food chemistry*, 54(24): 9099–104.

Iglesias MT, de Lorenzo C, Polo MD, Mart´ın- ´Alvarez PJ, Pueyo E. 2004. Usefulness ofamino acid composition to discriminate between honeydew and floral honeys. Application to honeys from a small geographic area. J Agric Food Chem 52:84–89

Inoue, K., Murayama, S., Seshimo, F., Takeba, K., Yoshimura, Y. & Nakazawa, H. 2005. Identification of phenolic compound in manuka honey as specific

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

superoxide anion radical scavenger using electron spin resonance (ESR) and liquid chromatography with coulometric array detection. *Journal of the Science of Food and Agriculture*, 85(5): 872–878.

Ishida, M., Nishi, K., Watanabe, H. & Sugahara, T. 2013. Inhibitory effect of aqueous spinach extract on degranulation of RBL-2H3 cells. *Food Chemistry*, 136(2): 322–327. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2012.08.079.

Ishikawa, Y., Tokura, T., Nakano, N., Hara, M., Niyonsaba, F., Ushio, H., Yamamoto, Y., Tadokoro, T., Okumura, K. & Ogawa, H. 2008a. Inhibitory Effect of Honeybee-Collected Pollen on Mast Cell Degranulation. 11(1): 14–20.

Ishikawa, Y., Tokura, T., Nakano, N., Hara, M., Niyonsaba, F., Ushio, H., Yamamoto, Y., Tadokoro, T., Okumura, K. & Ogawa, H. 2008b. Inhibitory Effect of Honeybee-Collected Pollen on Mast Cell Degranulation *In Vivo* and *In Vitro*. *Journal of Medicinal Food*, 11(1): 14–20. Tersedia di http://www.liebertonline.com/doi/abs/10.1089/jmf.2006.163.

Ishikawa, Y., Tokura, T., Ushio, H., Niyonsaba, F., Yamamoto, Y., Tadokoro, T., Ogawa, H. & Okumura, K. 2009. Lipid-soluble Components of Honeybee-collected Pollen exert Antiallergic Effect by inhibiting IgE-mediated Mast Cell Activation In Vivo. *Phytotherapy Research*, 23: 1581–1586. Tersedia di http://www3.interscience.wiley.com/journal/117934759/abstract.

Iuliana, B. & Cecilia, G. 2005. Chemical Contamination Of Bee Honey – Identifying Sensor Of The Environment Pollution Contaminarea Chimică A Mierii De Albine – Senzor De Identificarea A Mediului Poluat. *Journel Central European of Agriculture*, 6(1): 467–470.

James, O.O., Mesubi, M.A., Usman, L.A., Yeye, S.O., Ajanaku, K.O., Ogunniran, K.O., Ajani, O.O. & Siyanbola, T.O. 2009. Physical characterisation of some honey samples from North-central Nigeria. *International Journal of Physical Sciences*, 4(9): 464–470.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Jandrić, Z., Roberts, D., Rathor, M.N., Abrahim, J.A., Islam, M. & Cannavan, A. 2014. Assessment of fruit juice authenticity using UPLC-QToF MS: A metabolomics approach. *Food Chemistry*, 148: 7–17.

Jannesar, M., Shoushtari, M.S., Majd, A. & Pourpak, Z. 2017. Bee Pollen Flavonoids as a Therapeutic Agent in Allergic and Immunological Disorders. 16(June): 171–182.

Jerković, I., Kuś, P.M., Tuberoso, C.I.G. & Šarolić, M. 2014. Phytochemical and physical-chemical analysis of Polish willow (Salix spp.) honey: Identification of the marker compounds. *Food Chemistry*, 145: 8–14.

Jha, S.N., Chopra, S. & Kingsly, A.R.P. 2007. Modeling of color values for nondestructive evaluation of maturity of mango. *Journal of Food Engineering*, 78(1): 22–26.

JMHS 2011. Buku Persyaratan Permohonan Pendaftaran Perlindungan Indikasi Geografis Madu Sumbawa Jaringan.

Johnson, R. 2014. Food fraud and "Economically motivated adulteration" of food and food ingredients. *Food Fraud and Adulterated Ingredients: Background, Issues, and Federal Action*, 1–56.

Johnson, R.A. & Wichern, D.W. 2007. *Applied Multivariat Statistical Analysis (6th Edition)*. 6 ed. New Jersey: Pearson Education, Inc.

Jones, G.D. & Bryant, V.M. 2004. The use of ETOH for the dilution of honey. *Grana*, 43(3): 174–182.

Juríková, T., Mlček, J., Sochor, J. & Hegedűsová, A. 2015. Polyphenols and their Mechanism of Action in Allergic Immune ResponseImmune Response. *Global Journal of Allergy*, 1: 037–039.

Kahraman, T., Buyukunal, S.K., Vural, A. & Altunatmaz, S.S. 2010. Physico-chemical properties in honey from different regions of Turkey. *Food Chemistry*, 123(1): 41–44. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2010.03.123.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Kaiser, H.F. 1960. The application of electronic computers to factor analysis. *Educational and Psychological Measurenment*, XX(1): 141–151.

Kamal, M.A. & Klein, P. 2011. Determination of sugars in honey by liquid chromatography. *Saudi Journal of Biological Sciences*, 18(1): 17–21. Tersedia di http://dx.doi.org/10.1016/j.sjbs.2010.09.003.

Karabagias, I.K., Badeka, A., Kontakos, S., Karabournioti, S. & Kontominas, M.G. 2014a. Characterisation and classification of Greek pine honeys according to their geographical origin based on volatiles, physicochemical parameters and chemometrics. *Food Chemistry*, 146: 548–557. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2013.09.105.

Karabagias, I. K., Vavoura, M. V., Badeka, A., Kontakos, S., & Kontominas, M. G. 2014b. Differentiation of Greek Thyme Honeys According to Geographical Origin Based on the Combination of Phenolic Compounds and Conventional Quality Parameters Using Chemometrics. *Food Analytical Methods*, *7*(10), 2113–2121. https://doi.org/10.1007/s12161-014-9851-5

Karoui, R., Downey, G. & Blecker, C. 2010. Mid-Infrared Spectroscopy Coupled with Chemometrics : A Tool for the Analysis of Intact Food Systems and the Exploration of Their Molecular Structure − Quality Relationships − A Revie ... Mid-Infrared Spectroscopy Coupled with Chemometrics : A Tool for th. (August 2015): 6144–6168.

Kaškoniene, V. & Venskutonis, P.R. 2010. Floral Markers in Honey of Various Botanical and Geographic Origins: A Review. *Comprehensive Reviews in Food Science and Food Safety*, 9(6): 620–634.

Kaškoniene, V., Venskutonis, P.R. & Čeksteryte, V. 2010. Carbohydrate composition and electrical conductivity of different origin honeys from Lithuania. *LWT - Food Science and Technology*, 43(5): 801–807.

Kasprzyk, I. & Depciuch, J. 2017. FTIR-ATR spectroscopy of pollen and honey as a tool for monofloral honey authentication. The case study of rape honey. *Food Control*.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Kassim, M., Achoui, M., Mustafa, M.R., Mohd, M.A. & Yusoff, K.M. 2010. Ellagic acid, phenolic acids, and flavonoids in Malaysian honey extracts demonstrate in vitro anti-inflammatory activity. *Nutrition Research*, 30(9): 650–659. Tersedia di http://dx.doi.org/10.1016/j.nutres.2010.08.008.

Katia, S., Seraglio, T., Camargo, A., Daguer, H., Bergamo, G., Stremel, M., Valdemiro, L., Fett, R., Carolina, A. & Costa, O. 2016. Development and validation of a LC-ESI-MS / MS method for the determination of phenolic compounds in honeydew honeys with the diluted-and-shoot approach. *FRIN*, 87: 60–67. Tersedia di http://dx.doi.org/10.1016/j.foodres.2016.06.019.

Kato, Y., Araki, Y., Juri, M., Fujinaka, R., Ishisaka, A., Kitamoto, N., Nitta, Y., Niwa, T. & Takimoto, Y. 2014. Immunochemical Authentication of Manuka Honey Using a Monoclonal Antibody Speci fi c to a Glycoside of Methyl Syringate.

Kato, Y., Umeda, N., Maeda, A., Matsumoto, D. & Kitamoto, N. 2012. Identification of a Novel Glycoside, Leptosin, as a Chemical Marker of Manuka Honey.

Kelly, J.D., Petisco, C. & Downey, G. 2006. Application of Fourier transform midinfrared spectroscopy to the discrimination between Irish artisanal honey and such honey adulterated with various sugar syrups. *Journal of Agricultural and Food Chemistry*, 54(17): 6166–6171.

Kempuraj, D., Madhappan, B., Christodoulou, S., Boucher, W., Cao, J., Papadopoulou, N., Cetrulo, C.L. & Theoharides, T.C. 2005. Flavonols inhibit proinflammatory mediator release, intracellular calcium ion levels and protein kinase C theta phosphorylation in human mast cells. *British Journal of Pharmacology*, 145(7): 934–944.

Kerkvliet, J.D. & Meijer, H.A.J. 2000. Adulteration of honey: Relation between microscopic analysis and δ13C measurements. *Apidologie*, 31(6): 717–726.

Kerkvliet, J.D., Shrestha, M., Tuladhar, K. & Manandhar, H. 1995. Microscopic detection with cane sugar and cane sugar products. *Apidologie*, 26: 131–139.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Khalil, M.I., Moniruzzaman, M., Boukraâ, L., Benhanifia, M., Islam, M.A., Islam, M.N., Sulaiman, S.A. & Gan, S.H. 2012. Physicochemical and antioxidant properties of algerian honey. *Molecules*, 17(9): 11199–11215.

Kimata, M., Inagaki, N. & Nagai, H. 2000. Effects of luteolin and other flavonoids on IgE-mediated allergic reactions. *Planta Medica*, 66(1): 25–29.

Kishore, R.K., Halim, A.S., Syazana, M.S.N. & Sirajudeen, K.N.S. 2011. Tualang honey has higher phenolic content and greater radical scavenging activity compared with other honey sources. *Nutrition Research*, 31(4): 322–325. Tersedia di http://dx.doi.org/10.1016/j.nutres.2011.03.001.

Kopeć, A., Panaszek, B. & Fal, A.M. 2006. Intracellular signaling pathways in IgE-dependent mast cell activation. *Archivum Immunologiae et Therapiae Experimentalis*, 54(6): 393–401.

Kos, G., Lohninger, H. & Krska, R. 2003. Validation of Chemometric Models for the Determination of Deoxynivalenol on Maize by Mid-Infrared Spectroscopy 2 , Department for Chemical Technologies and Analytics , Vienna *, Corresponding Author Abstract Validation methods for chemometric models are p. 19: 149–153.

Košir, I.J. & Kidrič, J. 2001. Identification of amino acids in wines by one-and two-dimensional nuclear magnetic resonance spectroscopy. *Journal of Agricultural and Food Chemistry*, 49(1): 50–56.

Krpan, M., Markovi, K., SariC, G., Skoko, B., Hrusk ar, M., & Vahcic, N. 2009. Antioxidant activities and total phenolics af acacia honey. *Czech J Food Sci*, *27*(SPEC. ISS.), 246–247.

Krstonošić, M. A., Hogervorst, J. C., Mikulić, M., & Gojković-Bukarica, L. (2019). Development of HPLC method for determination of phenolic compounds on a core shell column by direct injection of wine samples. *Acta Chromatographica*, *32*(2), 134–138. https://doi.org/10.1556/1326.2019.00611

Kuś, P.M., Jerković, I., Tuberoso, C.I.G., Marijanović, Z. & Congiu, F. 2014.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Cornflower (centaurea cyanus l.) honey quality parameters: Chromatographic fingerprints, chemical biomarkers, antioxidant capacity and others. *Food Chemistry*, 142: 12–18.

Lachman, J., Kolihová, D., Miholová, D., Košata, J., Titěra, D. & Kult, K. 2007. Analysis of minority honey components: Possible use for the evaluation of honey quality. *Food Chemistry*, 101(3): 973–979.

Lachman, J., Orsák, M., Hejtmánková, A. & Kovářová, E. 2010. Evaluation of antioxidant activity and total phenolics of selected Czech honeys. *LWT - Food Science and Technology*, 43(1): 52–58.

Lanjwani, M.F. & Channa, F.A. 2019. Minerals content in different types of local and branded honey in Sindh, Pakistan. *Heliyon*, 5(7): e02042. Tersedia di https://doi.org/10.1016/j.heliyon.2019.e02042.

Latorre, C.H., Crecente, R.M.P., Martín, S.G. & García, J.B. 2013. A fast chemometric procedure based on NIR data for authentication of honey with protected geographical indication. *Food Chemistry*, 141(4): 3559–3565. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2013.06.022.

Latorre, M.J., Pen, R., Pita, C., Botana, A., Garcõâa, S. & Herrero, C. 1999. Chemometric classi ® cation of honeys according to their type . II . Metal content data. 66.

Lazarević, K.B., Andrić, F., Trifković, J., Tešić, Ž. & Milojković-Opsenica, D. 2012. Characterisation of Serbian monofloral honeys according to their physicochemical parameters. *Food Chemistry*, 132(4): 2060–2064.

Lin, Y., Deng, X., Li, X. & Ma, E. 2014. *Comparison of multinomial logistic regression and logistic regression: which is more efficient in allocating land use? Frontiers of Earth Science*, .

Louveaux, J., Maurizio, A. & Vorwohl, G. 1978. Methods of Melissopalynology. *Bee World*, 59(4): 139–157.

Ma, T., Zhao, H., Liu, C., Zhu, M., Gao, H., Cheng, N. & Cao, W. 2019.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Discrimination of natural mature acacia honey based on multi-physicochemical parameters combined with chemometric analysis. *Molecules*, 24(14): 16–19.

Martos, I., Ferreres, F. & Toma, F.A. 2000. Identification of Flavonoid Markers for the Botanical Origin of Eucalyptus Honey. 1498–1502.

Mateo, R. & Bosch-Reig, F. 1998. Classification of Spanish Monofloral Honeys by Discriminant Analysis of Electrical Conductivity, Color, Water Content, Sugars, and pH. *Journal of agricultural and food chemistry*, 46(2): 393–400. Tersedia di http://www.ncbi.nlm.nih.gov/pubmed/10554252.

Mato, I., Hidobro, J.., Simal-Lozano, J. & Sancho, M.. 2003. Significance of Nonaromatic Organic Acids in Honey. *Journal of Food Protection*, 66(12): 2371–2376.

Mato, I., Huidobro, J.F., Simal-Lozano, J. & Sancho, M.T. 2006. Rapid determination of nonaromatic organic acids in honey by capillary zone electrophoresis with direct ultraviolet detection. *Journal of Agricultural and Food Chemistry*, 54(5): 1541–1550.

Mavric, E., Wittmann, S., Barth, G. & Henle, T. 2008. Identification and quantification of methylglyoxal as the dominant antibacterial constituent of Manuka (Leptospermum scoparium) honeys from New Zealand. *Molecular Nutrition and Food Research*, 52(4): 483–489.

McKibben, J. & Engeseth, N.J. 2002. Honey as a protective agent against lipid oxidation in ground Turkey. *Journal of Agricultural and Food Chemistry*, 50(3): 592–595.

Meda, A., Lamien, C.E., Romito, M., Millogo, J. & Nacoulma, O.G. 2005. Determination of the total phenolic, flavonoid and proline contents in Burkina Fasan honey, as sumuran as their radical scavenging activity. *Food Chemistry*, 91(3): 571–577.

Medeiros, K.C.P., Figueiredo, C.A. V, Figueredo, T.B., Freire, K.R.L., Santos, F.A.R., Alcantara-neves, N.M., Silva, T.M.S. & Piuvezam, M.R. 2008. Anti-

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

allergic effect of bee pollen phenolic extract and myricetin in ovalbumin-sensitized mice. 119: 41–46.

Medhi, B., Prakasha, A., Avti, K., Saikia, U.N., Pandhia, P. & Khanduja, K.L. 2008. Effect of manuka honey and sulfasalazine in combination to promote antioxidant defense system in experimentally induced ulcerative colitis model in rats. *Indian Journal of Experimental Biology*, 46(8): 583–590.

Michalkiewicz, A., Biesaga, M. & Pyrzynska, K. 2008. Solid-phase extraction procedure for determination of phenolic acids and some flavonols in honey. *Journal of Chromatography A*, 1187(1–2): 18–24.

Miller, J.N. & Miller, J.C. 2010. *Statistics and Chemometrics for Analytical Chemistry*. 6 ed. Essex: Person Education Limited.

Miller S.I. 2016. Antibiotic Resistance and Regulation of the Gram-Negative Bacterial Outer Membrane Barrier by Host Innate Immune Molecules. mBio. 2016;7:e01541-16. doi: 10.1128/mBio.01541-16.

Milewska, A. J., Jankowska, D., Więsak, T., Acacio, B., & Milewski, R. 2018. The Application of Multinomial Logistic Regression Models for the Assessment of Parameters of Oocytes and Embryos Quality in Predicting Pregnancy and Miscarriage. *Studies in Logic, Grammar and Rhetoric*, *51*(1), 7–18. https://doi.org/10.1515/slgr-2017-0030

Mohamed, M., Sirajudeen, K. N. S., Swamy, M., Yaacob, N. S., & Sulaiman, S. A. 2010. Studies on the antioxidant properties of tualang honey of Malaysia. *African Journal of Traditional, Complementary and Alternative Medicines*, *7*(1), 59–63. https://doi.org/10.4314/ajtcam.v7i1.57256

Mohapatra, D.P., Thakur, V. & Brar, S.K. 2011. Antibacterial Efficacy of Raw and Processed Honey. *Biotechnology Research International*, 2011: 1–6. Tersedia di http://www.hindawi.com/journals/btri/2011/917505/.

Molan, P.C. 1992a. The antibacterial activity of honey 1. The nature of the antibacterial activity. *Bee World*, 73(1): 5–28.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Molan, P.C. 1992b. The antibacterial activity of honey 1. The nature of the antibacterial activity. *Bee World*, 73(1): 5–28.

Molan, P.C. 1992c. The Antibacterial of Honey 2 . Variation in the potency of the antibacterial activity Variation in antibacterial activity.

Molnâr-Perl, I. & Horvâth, K. 1997. Simultaneous quantitation of mono-, di- and trisaccharides as their TMS ether oxime derivatives by GC-MS: I. In model solutions. *Chromatographia*, 45: 321–327.

Moniruzzaman, M., An, C.Y., Rao, P.V., Nurul, M., Hawlader, I., Binti, S.A., Azlan, M., Sulaiman, S.A. & Gan, S.H. 2014a. Identification of Phenolic Acids and Flavonoids in Monofloral Honey from Bangladesh by High Performance Liquid Chromatography: Determination of Antioxidant Capacity.

Moniruzzaman, M., Yung An, C., Rao, P.V., Hawlader, M.N.I., Azlan, S.A.B.M., Sulaiman, S.A. & Gan, S.H. 2014b. Identification of phenolic acids and flavonoids in monofloral honey from bangladesh by high performance liquid chromatography: Determination of antioxidant capacity. *BioMed Research International*, 2014.

Mundo, M.A., Padilla-Zakour, O.I. & Worobo, R.W. 2004. Growth inhibition of foodborne pathogens and food spoilage organisms by select raw honeys. *International Journal of Food Microbiology*, 97(1): 1–8.

Muslim, T. 2014. Potensi Madu Hutan Dan Pengelolaannya Di Indonesia. *Prosiding Seminar Balitek KSDA, Balikpapan, December 2014*, 67–69. https://www.researchgate.net/publication/303520794_

Naes, T., Isaksson, T., Fearn, T. & Davies, T. 2004. *A User-Friendly Guide to Multivariat Calibration and Classification*. Chichester, UK: NIR Publications.

Nagai, T., Inoue, R., Kanamori, N., Suzuki, N. & Nagashima, T. 2006. Characterization of honey from different floral sources. Its functional properties and effects of honey species on storage of meat. *Food Chemistry*,

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

97(2): 256–262.

Nagai, T., Sakai, M., Inoue, R., Inoue, H. & Suzuki, N. 2001. Antioxidative activities of some commercially honeys, royal jelly, and propolis. *Food Chemistry*, 75(2): 237–240.

Nalda, M.J.N., Yagüe, J.L.B., Diego Calva, J.C. & Gómez, M.T.M. 2005. Classifying honeys from the Soria Province of Spain via multivariat analysis. *Analytical and Bioanalytical Chemistry*, 382(2): 311–319.

NCBI, National Center for Biotechnology Information. PubChem Database. CID=15624187, https://pubchem.ncbi.nlm.nih.gov/compound/xi-Linalool-3-_rhamnosyl-_1-_6_-glucoside (accessed on Mar. 13, 2020

Nicholson, J.K., Lindon, J.C. & Holmes, E. 1999. "Metabonomics": Understanding the metabolic responses of living systems to pathophysiological stimuli via multivariat statistical analysis of biological NMR spectroscopic data. *Xenobiotica*, 29(11): 1181–1189.

Nichoson, J.K., Holmes, E. & Lindon, J.C. 2007. Handbook of Metabonomics and MetabolomicsMetaabonomics and Metabolomics Tecniques and Their Applications in Mammalian Systems. J.C. Lindon & J.K. Nicholson, ed., *Handbook of Metabonomics and Metabolomics*, 1 ed. London: Elsevier, hal.1–573.

Nozal Nalda, M.J, Yagüe, J.L.B., Diego Calva, J.C. & Gómez, M.T.M. 2005. Classifying honeys from the Soria Province of Spain via multivariat analysis. *Analytical and Bioanalytical Chemistry*, 382(2): 311–319.

Oddo, L. P. E., & Piro, R. (2004). Main European unifloral honeys : descriptive sheets 1. *Apidologie*, *35*, 38–81. https://doi.org/10.1051/apido

Oelschlaegel, S., Gruner, M., Wang, P.N., Boettcher, A., Koelling-Speer, I. & Speer, K. 2012. Classification and characterization of manuka honeys based on phenolic compounds and methylglyoxal. *Journal of Agricultural and Food Chemistry*, 60(29): 7229–7237.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Ohmenhaeuser, M., Monakhova, Y.B., Kuballa, T. & Lachenmeier, D.W. 2013. Qualitative and Quantitative Control of Honeys Using NMR Spectroscopy and Chemometrics. *ISRN Analytical Chemistry*, 2013: 1–9. Tersedia di http://www.hindawi.com/journals/isrn/2013/825318/.

Okada, Y. & Okada, M. 1998. Scavenging Effect of Water Soluble Proteins in Broad Beans on Free Radicals and Active Oxygen Species. *Journal of Agricultural and Food Chemistry*, 46(2): 401–406.

Olawode, E.O., Tandlich, R. & Cambray, G. 2018. 1 H-NMR profiling and chemometric analysis of selected honeys from South Africa, Zambia, and Slovakia. *Molecules*, 23(3).

Oliveri, P. & Downey, G. 2012a. Multivariat class modeling for the verification of food-authenticity claims. *TrAC - Trends in Analytical Chemistry*, 35: 74–86. Tersedia di http://dx.doi.org/10.1016/j.trac.2012.02.005.

Oliveri, P. & Downey, G. 2012b. Multivariat class modeling for the verification of food-authenticity claims. *Trends in Analytical Chemistry*, 35: 74–86. Tersedia di http://dx.doi.org/10.1016/j.trac.2012.02.005.

Opsenica, D.M., Luší, D. & Teší, Ž. 2015. Modern analytical techniques in the assessment of the authenticity of Serbian honey. *Arhiv za Higijenu Rada i Toksikologiju*, 66(4): 233–241.

Oroian, M. 2012. Physicochemical and Rheological Properties of Romanian Honeys. *Food Biophysics*, 7(4): 296–307.

Oroian, M. & Ropciuc, S. 2017. Honey authentication based on physicochemical parameters and phenolic compounds. *Computers and Electronics in Agriculture*, 138: 148–156. Tersedia di http://dx.doi.org/10.1016/j.compag.2017.04.020.

Özcan, M., Arslan, D., & Ali Ceylan, D. (2006). Effect of inverted saccharose on some properties of honey. *Food Chemistry*, *99*(1), 24–29. https://doi.org/10.1016/j.foodchem.2005.07.009

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Othman, Z., Zakaria, R., Hussain, N., Hassan, A., Shafin, N., Al-Rahbi, B., & Ahmad, A. 2015. Potential Role of Honey in Learning and Memory. *Medical Sciences*, *3*(2), 3–15. https://doi.org/10.3390/medsci3020003

Pasquini, B., Goodarzi, M., Orlandini, S., Beretta, G., Furlanetto, S., & Dejaegher, B. 2014. Geographical characterisation of honeys according to their mineral content and antioxidant activity using a chemometric approach. *International Journal of Food Science and Technology*, *49*(5), 1351–1359. https://doi.org/10.1111/ijfs.12436

Patton, T., Barrett, J., Brennan, J. & Moran, N. 2006. Use of a spectrophotometric bioassay for determination of microbial sensitivity to manuka honey. *Journal of Microbiological Methods*, 64(1): 84–95.

Pereira, A.P., Dias, T., Andrade, J., Ramalhosa, E. & Estevinho, L.M. 2009. Mead production: Selection and characterization assays of Saccharomyces cerevisiae strains. *Food and Chemical Toxicology*, 47(8): 2057–2063. Tersedia di http://dx.doi.org/10.1016/j.fct.2009.05.028.

Persano-Oddo, L. & Piro, R. 2004. Main European monofloral honeys: descriptive sheets1. *Apidologie*, 35: S38–S81.

Piljac-Žegarac, J., Stipčević, T. & Belščak, A. 2009. Antioxidant properties and phenolic content of different floral origin honeys. *Journal of ApiProduct and ApiMedical Science*, 1(2): 43–50.

Pita-calvo, C. & Vázquez, M. 2016. Differences between honeydew and blossom honeys: a review. *Trends in Food Science & Technology*. Tersedia di http://dx.doi.org/10.1016/j.tifs.2016.11.015.

Pribadi, A., & Wiratmoko, M. E. (2019). Karakteristik Madu Lebah Hutan (Apis dorsata Fabr .) dari Berbagai Bioregion di Riau (Apis dorsata Forest Honey Characteristics from Bioregions in Riau). *Jurnal Penelitian Hasil Hutan*, *37*(3), 185–200.

Primrose, S., Woolfe, M. & Rollinson, S. 2010. Food forensics: Methods for determining the authenticity of foodstuffs. *Trends in Food Science and Technology*, 21(12): 582–590. http://dx.doi.org/10.1016/j.tifs.2010.09.006.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Prior, R.L., Wu, X. & Schaich, K. 2005. Standarized Methods for the Determination of Antioxidant Capacity and Phenolics in Foods and Dietary Supplements. *Journal of Agricultural and Food Chemistry*, 53(10): 4290–4302.

Punt, J., Stranford, S., Jones, P. & Owen, J.A. 2006. *Kuby Immunology*. 6 ed. New York: W.H.Freeman & Co Ltd.

Purnomo, D.W., Fijridiyanto, I.A. & Witono, J.R. 2018. Penilaian Variabel Vegetasi pada lahan reklamasi Bekas Tambang Emas di ratatootok, Minahasa Tenggara. *Jurnal Penelitian Kehutanan Wallacea*, 7: 93–108.

Pyrzynska, K. & Biesaga, M. 2009. Analysis of phenolic acids and flavonoids in honey. *TrAC - Trends in Analytical Chemistry*, 28(7): 893–902. Tersedia di http://dx.doi.org/10.1016/j.trac.2009.03.015.

Rajan, T. V., Tennen, H., Lindquist, R.L., Cohen, L. & Clive, J. 2002. Effect of ingestion of honey on symptoms of rhinoconjunctivitis. *Annals of Allergy, Asthma and Immunology*, 88(2): 198–203. Tersedia di http://dx.doi.org/10.1016/S1081-1206(10)61996-5.

Randi, A., Manurung, T.F. & Siahaan, S. 2014. Identifikasi Jenis-Jenis Pohon Penyusun Vegetasi Gambut Taman Nasional Danau Sentarum Kabupaten Kapuas Hulu (Identification of Tree Species as the Compiler of Peat Swamp Vegetation in Danau SentarumNational Park Kapuas Hulu Regency). *Hutan Lestari*, 2(1): 66–73.

Rencher, A.C. 2002. *Methods of Multivariat Analysis*. 2nd ed. *Technometrics*, John Wiley & Sons Ltd.

Rao, P. V., Krishnan, K. T., Salleh, N., & Gan, S. H. 2016. Biological and therapeutic effects of honey produced by honey bees and stingless bees: A comparative review. *Brazilian Journal of Pharmacognosy*, *26*(5), 657–664. https://doi.org/10.1016/j.bjp.2016.01.012

Ribeiro, R. de O.R., Mársico, E.T., Carneiro, C. da S., Monteiro, M.L.G., Júnior, C.C. & Jesus, E.F.O. de 2014. Detection of honey adulteration of high

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

fructose corn syrup by Low Field Nuclear Magnetic Resonance (LF 1H NMR). *Journal of Food Engineering*, 135: 39–43. http://www.sciencedirect.com/science/article/pii/S0260877414001228.

Rice-Evans, C.A., Miller, N.J. & Paganga, G. 1997. Antioxidant properties of phenolic compounds. *Trends in Plant Science*, 2(4): 152–159.

Rijke, E. De, Out, P., Niessen, W.M.A., Ariese, F., Gooijer, C. & Th, U.A. 2006. Analytical separation and detection methods for flavonoids. 1112: 31–63.

Ruchado, P.I.T., Ourn, E.L.T., Allez, L.I.M.G. & Oreno, D.I.A.M. 2010. Identification of Botanical Biomarkers in Argentinean Diplotaxis Honeys : Flavonoids and Glucosinolates. 12678–12685.

Ruoff, K., Iglesias, M.T., Luginbühl, W., Bosset, J.O., Bogdanov, S. & Amadò, R. 2006. Quantitative analysis of physical and chemical measurands in honey by mid-infrared spectrometry. *European Food Research and Technology*, 223(1): 22–29.

Saarinen, K., Jantunen, J. & Haahtela, T. 2011. Birch Pollen Honey for Birch Pollen Allergy – A Randomized Controlled. *Int Arch Allergy Immunol*, (155): 160–166.

Salgado, C.R. & Maidana, J.F. 2014. Physicochemical characterisation of honey produced in the chaco province (Argentina). *Revista de la Facultad de Ciencias Agrarias*, 46(2): 191–201.

Sari, R.K. & Bertoni, R. 2014. Kajian Manfaat Madu hutan Anggota JMHI terhadap Penyakit Kanker dan Anti Aging. *Jaringan Madu Hutan Indonesia Scientific Report*.

Sarwono B. 2001. Kiat Mengatasi Permasalahan Praktis Lebah Madu. Cetakan Pertama. Jakarta : PT . Agro Media Pustaka

Schievano, E., Stocchero, M., Morelato, E., Facchin, C. & Mammi, S. 2012. An NMR-based metabolomic approach to identify the botanical origin of honey. *Metabolomics*, 8(4): 679–690.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Schievano, E., Tonoli, M. & Rastrelli, F. 2017. NMR Quantification of Carbohydrates in Complex Mixtures. A Challenge on Honey. *Analytical Chemistry*, 89(24): 13405–13414.

Schramm, D.D., Karim, M., Schrader, H.R., Holt, R.R., Cardetti, M. & Keen, C.L. 2003. Honey with high levels of antioxidants can provide protection to healthy human subjects. *Journal of Agricultural and Food Chemistry*, 51(6): 1732–1735.

Sedak, M., Bilandz, N., Rudan, N. & Konc, A. 2011. Determination of trace elements in Croatian floral honey originating from different regions ˇ ic. 128: 1160–1164.

Senyuva HZ, Gilbert J, Silici S, Charlton A, Dal C, Gurel N, Cimen D. 2009. Profiling Turkish honeys to determine authenticity using physical and chemical characteristics. J Agric Food Chem 57:3911–9

Sereia, M.J., Março, P.H., Perdoncini, M.R.G., Parpinelli, R.S., de Lima, E.G. & Anjo, F.A. 2017. Techniques for the Evaluation of Physicochemical Quality and Bioactive Compounds in Honey. *Honey Analysis*.

Ben Sghaier, M., Skandrani, I., Nasr, N., Franca, M.G.D., Chekir-Ghedira, L. & Ghedira, K. 2011. Flavonoids and sesquiterpenes from Tecurium ramosissimum promote antiproliferation of human cancer cells and enhance antioxidant activity: A structure-activity relationship study. *Environmental Toxicology and Pharmacology*, 32(3): 336–348. Tersedia di http://dx.doi.org/10.1016/j.etap.2011.07.003.

Shimadzu 2015. *Analysis of Sugars and Sugar Alcohols in Energy Drink by Prominence-i with Differential Refractive Index Detector*.

Siddiqui, A.J., Musharraf, S.G., Choudhary, M.I. & Rahman, A.- 2017a. Application of analytical methods in authentication and adulteration of honey. *Food Chemistry*, 217: 687–698. Tersedia di http://linkinghub.elsevier.com/retrieve/pii/S030881461631384X.

Siddiqui, A.J., Musharraf, S.G., Choudhary, M.I. & Rahman, A. ur 2017b.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Application of analytical methods in authentication and adulteration of honey. *Food Chemistry*, 217: 687–698. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2016.09.001.

Silici, S., Sagdic, O. & Ekici, L. 2010. Total phenolic content, antiradical, antioxidant and antimicrobial activities of Rhododendron honeys. *Food Chemistry*, 121(1): 238–243. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2009.11.078.

da Silva, P.M., Gauche, C., Gonzaga, L.V., Carolina, A., Costa, O. & Fett, R. 2016. Honey : Chemical composition , stability and authenticity. *FOOD CHEMISTRY*, 196: 309–323. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2015.09.051.

Da Silva, P.M., Gauche, C., Gonzaga, L.V., Costa, A.C.O. & Fett, R. 2016a. Honey: Chemical composition, stability and authenticity. *Food Chemistry*, 196: 309–323. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2015.09.051.

Da Silva, P.M., Gauche, C., Gonzaga, L.V., Costa, A.C.O. & Fett, R. 2016b. Honey: Chemical composition, stability and authenticity. *Food Chemistry*, 196: 309–323.

Singh, A., Holvoet, S. & Mercenier, A. 2011. Dietary polyphenols in the prevention and treatment of allergic diseases. *Clinical and Experimental Allergy*, 41(10): 1346–1359.

Sivakesava, S. & Irudayaraj, J. 2001. Prediction of Inverted Cane Sugar Adulteration of Honey by Fourier Transform Infrared Spectroscopy. *Journal of Food Science: Food Engineering and Physical Propertiesroperties*, 66(7): 972–978.

SNI 2018. *Standar Nasional Indonesia 8664: 2018 Madu*.

Soares, S., Amaral, J.S., Oliveira, M.B.P.P. & Mafra, I. 2017. A Comprehensive Review on the Main Honey Authentication Issues: Production and Origin. *Comprehensive Reviews in Food Science and Food Safety*, 16(5): 1072–

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

1100.

Socha, R., Juszczak, L., Pietrzyk, S., Gałkowska, D., Fortuna, T. & Witczak, T. 2011. Phenolic profile and antioxidant properties of Polish honeys. *International Journal of Food Science and Technology*, 46(3): 528–534.

Sohaimy, S.A. El, Masry, S.H.D. & Shehata, M.G. 2015. Physicochemical characteristics of honey from different origins. *Annals of Agricultural Sciences*, 60(2): 279–287. Tersedia di http://dx.doi.org/10.1016/j.aoas.2015.10.015.

Spilioti, E., Jaakkola, M., Tolonen, T., Lipponen, M., Virtanen, V., Chinou, I., Kassi, E., Karabournioti, S. & Moutsatsou, P. 2014. Phenolic acid composition, antiatherogenic and anticancer potential of honeys derived from various regions in Greece. *PLoS ONE*, 9(4): 1–10.

Spink, J., Vincent Hegarty, P., Fortin, N.D., Elliott, C.T. & Moyer, D.C. 2019. The application of public policy theory to the emerging food fraud risk: Next steps. *Trends in Food Science and Technology*, 85(October 2018): 116–128. Tersedia di https://doi.org/10.1016/j.tifs.2019.01.002.

Spiteri, M., Jamin, E., Thomas, F., Rebours, A., Lees, M., Rogers, K.M. & Rutledge, D.N. 2015. Fast and global authenticity screening of honey using 1H-NMR profiling. *Food Chemistry*, 189: 60–66. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2014.11.099.

Stephen, W.A. 1946. The Relationship of Moisture Content and Yeast Count in Honey Fermentation. *Scientific Agriculture*, 26(6): 258–264.

Stobiecki, M. 2000. Application of mass spectrometry for identification and structural studies of flavonoid glycosides. *Phytochemistry*, 54(3): 237–256.

Subari, N., Saleh, J.M., Shakaff, A.Y.M. & Zakaria, A. 2012. A hybrid sensing approach for pure and adulterated honey classification. *Sensors (Switzerland)*, 12(10): 14022–14040.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Subbiah, B., Stembridge, A. L., & Morison, K. R. (2015). Measurement and Calculation of the Electrical Conductivity of Model Honey Solutions Measurement and Calculation of the Electrical Conductivity of Model Honey Solutions. *APCChECogress Incoporating Chemeca 2015, September*, 1–10.

Svečnjak, L., Prđun, S., Rogina, J., Bubalo, D. & Jerković, I. 2017. Characterization of Satsuma mandarin (Citrus unshiu Marc.) nektar-to-honey transformation pathway using FTIR-ATR spectroscopy. *Food Chemistry*, 232: 286–294.

Szopos, S., Dóka, O., Bicanic, D. & Ajtony, Z. 2008. Water content of acacia honey determined by two established methods and by optothermal window. *Acta Chimica Slovenica*, 55(2): 273–276.

Tan, S., Holland, P.T., Wilkins, A.L. & Molan, P.C. 1988. Extractives from New Zealand Honeys . 1 . White Clover , Manuka , and Kanuka Monofloral Honeys. 453–460.

Taormina, P.J., Niemira, B.A. & Beuchat, L.R. 2001. Inhibitory activity of honey against foodborne pathogens as influenced by the presence of hydrogen peroxide and level of antioxidant power. *International Journal of Food Microbiology*, 69(3): 217–225.

Tax, D.M.J. & Duin, R.P.W. 1998. Outlier detection using classifier instability. *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 1451: 593–601.

Terrab, A., Díez, M.J. & Heredia, F.J. 2002. Characterisation of Moroccan monofloral honeys by their physicochemical characteristics. *Food Chemistry*, 79(3): 373–379.

Terrab, A., Hernanz, D. & Heredia, F.J. 2004. Inductively coupled plasma optical emission spectrometric determination of minerals in thyme honeys and their determination of geographical discrimination. *Journal of Agricultural and Food Chemistry*, 52(11): 3441–3445.

Tewari, J.C. & Irudayaraj, J.M.K. 2005. Floral Classification of Honey Using

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
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Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Mid-Infrared Spectroscopy and Surface Acoustic Wave Based z-Nose Sensor. *Journal of Agricultural and Food Chemistry*, 53(18): 6955–6966. Tersedia di http://pubs.acs.org/doi/abs/10.1021/jf050139z.

Thompson, D. 2001. Cytokines in disease. *CPD Bulletin Clinical Biochemistry*, 3(2): 43–47.

Tomás-Barberán, F.A., Ferreres, F., García-Vignera, C. & Tomás-Lorente, F. 1993. Flavonoids in honey of different geographical origin. *Zeitschrift für Lebensmittel-Untersuchung und -Forschung*, 196(1): 38–44.

Tomás-Barberán, F.A., Martos, I., Ferreres, F., Radovic, B.S. & Anklam, E. 2001. HPLC flavonoid profiles as markers for the botanical origin of European monofloral honeys. *Journal of the Science of Food and Agriculture*, 81(5): 485–496.

Tornuk, F., Karaman, S., Ozturk, I., Toker, O.S., Tastemur, B., Sagdic, O., Dogan, M. & Kayacier, A. 2013. Quality characterization of artisanal and retail Turkish blossom honeys: Determination of physicochemical, microbiological, bioactive properties and aroma profile. *Industrial Crops and Products*, 46: 124–131. Tersedia di http://dx.doi.org/10.1016/j.indcrop.2012.12.042.

Truchado, P., Ferreres, F., Bortolotti, L., Sabatini, A.G. & Tomás-Barberán, F.A. 2008a. Nektar flavonol rhamnosides are floral markers of acacia (Robinia pseudacacia) honey. *Journal of Agricultural and Food Chemistry*, 56(19): 8815–8824.

Truchado, P., Ferreres, F., Bortolotti, L., Sabatini, A.G. & Tomás-Barberán, F.A. 2008b. Nektar flavonol rhamnosides are floral markers of acacia (Robinia pseudacacia) honey. *Journal of Agricultural and Food Chemistry*, 56(19): 8815–8824.

Truzzi, C., Annibaldi, A., Illuminati, S., Finale, C. & Scarponi, G. 2014. Determination of proline in honey: Comparison between official methods, optimization and validation of the analytical methodology. *Food Chemistry*,

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

150: 477–481. Tersedia di http://dx.doi.org/10.1016/j.foodchem.2013.11.003.

Trygg, J., Trygg, J. & Wold, S. 2002. Orthogonal Projections to Latent Structures (O- PLS) Orthogonal projections to latent structures (O-PLS). (April 2017).

Tuberoso, C.I.G., Bifulco, E., Caboni, P., Sarais, G., Cottiglia, F. & Floris, I. 2011a. Lumichrome and phenyllactic acid as chemical markers of thistle (Galactites tomentosa Moench) honey. *Journal of Agricultural and Food Chemistry*, 59(1): 364–369.

Tuberoso, C.I.G., Jerkovi??, I., Sarais, G., Congiu, F., Marijanovi??, Z. & Ku??, P.M. 2014a. Color evaluation of seventeen European monofloral honey types by means of spectrophotometrically determined CIE L ???? - Cab ???? - Hab ?????? chromaticity coordinates. *Food Chemistry*, 145: 284–291.

Tuberoso, C.I.G., Jerkoví, I., Bifulco, E. & Marijanović, Z. 2011b. Biodiversity of salix spp. honeydew and nektar honeys determined by RP-HPLC and evaluation of their antioxidant capacity. *Chemistry and Biodiversity*, 8(5): 872–879.

Tuberoso, C.I.G., Jerković, I., Sarais, G., Congiu, F., Marijanović, Z. & Kuś, P.M. 2014b. Color evaluation of seventeen European monofloral honey types by means of spectrophotometrically determined CIE L*C* ab h*ab chromaticity coordinates coordinates. *Food Chemistry*, 145: 284–291.

Tuzen, M. & Soylak, M. 2005. Trace heavy metal levels in microwave digested honey samples from Middle Anatolia, Turkey. *Journal of Food and Drug Analysis*, 13(4): 343–347.

Vaikousi, H., Koutsoumanis, K. & Biliaderis, C.G. 2009. Kinetic modelling of non-enzymatic browning in honey and diluted honey systems subjected to isothermal and dynamic heating protocols. *Journal of Food Engineering*, 95(4): 541–550. Tersedia di http://dx.doi.org/10.1016/j.jfoodeng.2009.06.017.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Varmuza, K. & Filzmoser, P. 2008. *Introduction to multivariat statistical analysis in chemometrics*.

Veer, G. Van Der, Ruth, S.M. Van & Akkermans, W. 2011. Guidelines for validation of chemometric models for food authentication.

Viant, M.R. 2007. Metabolomics of aquatic organisms: The new "omics" on the block. *Marine Ecology Progress Series*, 332(Viant 2003): 301–306.

Viuda-martos, M., Ruiz-navajas, Y., Fernández-lópez, J., & Pérez-álvarez, J. A. .2008. Functional Properties of Honey , Propolis , and Royal Jelly. *Journal of Food Science*, *73*(December), R117–R124. https://doi.org/10.1111/j.1750-3841.2008.00966.x

Wahyudi 2013. *Buku Pegangan Hasil Hutan Bukan Kayu*. 1 ed. Penerbit Pohon Cahaya.

Wang, J., Kliks, M.M., Jackson, M. & Li, Q.X. 2010. Rapid Analysis of Glucose, Fructose, Sucrose, and Maltose in Honeys from Different Geographic Regions using Fourier Transform Infrared Spectroscopy and Multivariat Analysis. *Journal of Food Science*, 75(2): 1–16.

Wedmore, E.B. 1955. The Accurate Determination of the Water Content of Honeys: Part I. Introduction and Results. *Bee World*, 36(11): 197–206.

Werner, V.D.O., Oddo, L., Piana, M., Morlot, M. & Martin, P. 2004. Harmonized methods of melissopalynology. *Apidologie*, 35: s18–s25.

White, J.W. (jr. & Doner, L.. 1980. *Honey Composition and Properties*. *Beekeeping in the United States Agricultural Handbook (Revised), No. 335*.

White, J.W., Subers, M.H. & Schepartz, A.I. 1963. The identification of inhibine, the antibacterial factor in honey, as hydrogen peroxide and its origin in a honey glucose-oxidase system. *BBA - Biochimica et Biophysica Acta*, 73(1): 57–70.

Wishart, D.S. 2008. Metabolomics : applications to food science and nutrition research. *Trends in Food Science & Technology*, 19: 482–493.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Xia, J., Broadhurst, D. I., Wilson, M., & Wishart, D. S. (2013). *Translational biomarker discovery in clinical metabolomics : an introductory tutorial*. 280–299. https://doi.org/10.1007/s11306-012-0482-9

Xu, D.P., Li, Y., Meng, X., Zhou, T., Zhou, Y., Zheng, J., Zhang, J.J. & Li, H. Bin 2017. Natural antioxidants in foods and medicinal plants: Extraction, assessment and resources. *International Journal of Molecular Sciences*, 18(1): 20–31.

Yaghoobi, N., Al-Waili, N., Ghayour-Mobarhan, M., Parizadeh, S.M.R., Abasalti, Z., Yaghoobi, Z., Yaghoobi, F., Esmaeili, H., Kazemi-Bajestani, S.M.R., Aghasizadeh, R., Saloom, K.Y. & Ferns, G.A.A. 2008. Natural honey and cardiovascular risk factors; effects on blood glucose, cholesterol, triacylglycerole, CRP, and body weight compared with sucrose. *TheScientificWorldJournal*, 8: 463–469.

Yaginuma, S., Muto, N., Tsujino, M., Sudate, Y., Hayashi, M. & Otani, M. 1981. Studies on neplanocin a, new antitumor antibiotic. I. producing organism, isolation and characterization. *Journal of Antibiotics*, 34(4): 359–366.

Yao, L.K., Razak, S.L.A., Ismail, N., Fai, N.C., Asyraf, M.H., Asgar, M., Sharif, N.M., Aan, G.J. & Jubri, Z. 2011. Malaysian gelam honey reduces oxidative damage and modulates antioxidant enzyme activities in young and middle aged rats. *Journal of Medicinal Plant Research*, 5(23): 5618–5625.

Yücel, Y. & Sultanoğlu, P. 2013. Characterization of honeys from Hatay Region by their physicochemical properties combined with chemometrics. *Food Bioscience*, 1: 16–25.

Zakaria, A., Shakaff, A.Y.M., Masnan, M.J., Ahmad, M.N., Adom, A.H., Jaafar, M.N., Ghani, S.A., Abdullah, A.H., Aziz, A.H.A., Kamarudin, L.M., Subari, N. & Fikri, N.A. 2011. A biomimetic sensor for the classification of honeys of different floral origin and the detection of adulteration. *Sensors*, 11(8): 7799–7822.

UNIVERSITAS
GADJAH MADA
KARAKTERISASI, AUTENTIKASI DAN IDENTIFIKASI SENYAWA PENANDA BIOAKTIF MADU HUTAN INDONESIA
RISWAHYULI, Prof. Dr. Ir. Sri Raharjo, M.Sc.; Prof. Dr. Abdul Rohman, M.Si., Apt.; Dr.nat.techn. FM.C. Sigit Setyabu
Universitas Gadjah Mada, 2020 | Diunduh dari http://etd.repository.ugm.ac.id/

Zhang, A., Wan, L., Wu, C., Fang, Y., Han, G., Li, H., Zhang, Z., & Wang, H. (2013). Simultaneous determination of 14 phenolic compounds in grape canes by HPLC-DAD-UV using wavelength switching detection. *Molecules*, *18*(11), 14241–14257. https://doi.org/10.3390/molecules181114241

Zhao, J., Du, X., Cheng, N., Chen, L., Xue, X., Zhao, J., Wu, L. & Cao, W. 2016. Identification of monofloral honeys using HPLC-ECD and chemometrics. *Food Chemistry*, 194: 167–174.

Zhou, J., Yao, L., Li, Y., Chen, L., Wu, L. & Zhao, J. 2014. Floral classification of honey using liquid chromatography-diode array detection-tandem mass spectrometry and chemometric analysis. *Food Chemistry*, 145: 941–949.