

BAB VI PENUTUP

6.1. Kesimpulan

1. Terdapat pengaruh penambahan variasi konsentrasi susu skim dan lama penyimpanan terhadap sifat fisikokimia yogurt bit merah yang meliputi sineresis, total asam, pH. Semakin banyak penambahan susu skim dan semakin lama penyimpanan, maka pH semakin turun, total asam semakin meningkat.
2. Terdapat interaksi pengaruh penambahan variasi konsentrasi susu skim dan lama penyimpanan terhadap sineresis dan total asam yogurt bit merah yang dihasilkan.
3. Yogurt bit merah yang dihasilkan memiliki kisaran pH 3,8-4,4; kisaran total asam laktat 0,68-1,29%; kisaran sineresis sebesar 0,24%-1,22% dan kisaran aktivitas antioksidan sebesar 53,49-61,72% selama penyimpanan 14 hari.
4. Perlakuan penambahan susu skim sebesar 1% merupakan perlakuan terbaik dengan pH 4,3; total asam 0,86%; memiliki antioksidan sebesar 53,49 % dan masih memiliki total BAL 9,9870 log cfu/ml setelah disimpan 14 hari.

6.2. Saran

Perlu dilakukan uji lama penyimpanan lebih dari 14 hari karena pada hari ke 14 yogurt bit merah masih memenuhi SNI, dan perlu dilakukan pengujian organoleptik selama penyimpanan untuk mengetahui tingkat penerimaan konsumen terhadap yogurt bit merah.

DAFTAR PUSTAKA

- Ace, I. S. dan S. Supangkat. 2006. Pengaruh Konsentrasi Starter terhadap Karakteristik Yoghurt. *Jurnal Penyuluhan Pertanian Vol. 1 No. 1, Mei 2006*.
- Adam, M. R. and M.O. Moss. 2000. *Food Microbiology*. Second Edition. The Royal Society of Chemistry. Ombrigde.UK
- Amatayakul, T., F. Sherkat, and N.P. Shah. 2006. Syneresis in Set Yogurt As Affected by EPS Starter Cultures and Levels of Solids. *International Journal of Dairy Technology* 59 (1).
- Apriyantono, A., D. Fardiaz, N. L. Puspitasari, Sedarnawati, dan S. Budiyo. 1989. *Petunjuk Laboratorium Analisa Pangan*. Bogor: Pusat Antar Universitas Pangan dan Gizi Institut Pertanian Bogor.
- Astawan, M. 2008. *Khasiat Warna-Warni Makanan*. Jakarta: Gramedia Pustaka Utama.
- Aswal Priyanka, Shukla Anubha, Priyadarshi Siddhath. 2012. Yoghurt: Preparation, Characteristics and Characteristics and Recent Advancements. *Vol. 1 (2-3), pp.32-44*
- Badan Pusat Statistik (BPS), diakses dari <http://www.bps.go.id/>, diakses pada tanggal Agustus 2013
- Badan Standardisasi Nasional. 1998. *SNI Susu Segar (SNI 01-3141-1998)*. Dewan Standardisasi Nasional : Jakarta.
- Badan Standardisasi Nasional. 2009. *SNI Yoghurt (SNI 2981:2009)*. Dewan Standardisasi Nasional : Jakarta.
- Bakirci, I. Dan A. Kavaz. 2008. An Investigation of Some Properties of Banana Yogurts Made with Commercial ABT-2 Starter Culture during Storage. *International Journal of Dairy Technology* 61 (3): 270-276.
- Buckle, K.A., R.A. Edward, G.H. Fleet, dan M.Wootton. 1987. *Ilmu Pangan*. Jakarta: UI Press.

- Celik, S and I. Bakirci. 2004. Some Properties of Yoghurt by Adding Mulberry Pekmez (Concentrated Juice). *International Journal of Dairy Technology* 56 (1) : 26-29.
- Celik, S., I. Bakirci., and I. G. Sat. 2005. Physicochemical and Organoleptic Properties of Yogurt with Cornelian Cherry Paste. *International Journal of Food Properties* 9: 401-408
- Champagne *et al.* 2005. Effects of Different Fruits and Storage Periods on Microbiological Qualities of Fruit-Flavoured Yoghurt. *Journal of Food Protection* 59 : 402-406.
- Considine, D.M. dan G. D. Considine. 1982. *Food and Food Production Encyclopedia*. Van Nontrand Reinhold Co., Inc., New York.
- Cossu, M., C. Juliano., R. Pisu., and M.C. Alamanni. 2009. Effects on Enrichment with Polyphenolic Extracts from Sardinian Plants on Physico-Chemical, Antioxidant and Microbiological Properties of Yogurt. *Italy Journal of Food Science* 21 (4) : 447-459.
- Djaafar, T. F. dan E. S. Rahayu. 2006. Karakteristik Yogurt dengan Inokulum *Lactobacillus* yang Diisolasi dari Makanan Fermentasi Tradisional. *Agros*. 8 (1), 73-80
- Eniza, S. 2004. "Teknologi Pengolahan Susu dan Hasil Ikutan Ternak". Universitas Sumatera Utara.
- Erkus. 2011. *Streptococcus salivarius ssp. thermophilus*. http://www.magma.ca/~pavel/science/S_thermophilus.htm (18 Maret 2013)
- Fardiaz, S. 1989. *Mikrobiologi Pangan: Penuntun Praktek Laboratorium*. Bogor: IPB Jurusan Teknologi Pangan dan Gizi.
- Fellows, P. 1990. *Food Processing Technology Principles and Practice*. New York: Ellis Hawood.
- Gordon, M.H. 1994. *The Mechanisme of Antioxidants Action in Vitro*. editor: B.J.F. Hudson, Food Antioxidants, Elsvier Applied Science, London, 8.

- Guzel-Seydim, Z., E. Sezgin, A. C. Seydim. 2005. Influences of Exopolysaccharide Producing Cultures on The Quality of Plain Set Type Yogurt. *Food Control*, 16 (2005): 205-209.
- Grizard, D. dan Barthomeuf C. 1999. Non-Digestible Oligosaccharides Used As Prebiotic Agents: Mode of Production and Beneficial Effects on Animal and Human Health, *Reprod. Nutr. Dev.*, 39 (5-6), 63-88.
- Hadiwiyoto, S. 1983. *Hasil-Hasil Olahan Susu, Ikan, Daging dan Telur*. Yogyakarta: Liberty.
- Hart, H., Leslie E.C., David J.H. 2003. *Kimia Organik*. Jakarta: Erlangga.
- Hasibuan, dkk. 2009. Antioxidant Activity of Rosella's Yogurt in Storage Time. *Turki Journal of Biology*, 35 :103-110.
- Heller, Knut J. 2001. Probiotic Bacteria In Fermented Foods: Product Characteristics And Starter Organisms¹⁻³. *Am J Clin Nutr* 2001; 73(suppl): 374S-9S.
- Hui, Y. H. 1991. *Encyclopedia of Food Science and Technology volume 4*. USA : A Wiley-Interscience Publications.
- Hui, Y. H. 1992. *Dairy Science and Technology Handbook volume 1: Principles and Properties*. New York: VCH Publishers, Inc.
- Hui, Y. H. 1993. *Dairy Science and Technology Handbook Volume 2: Product Manufacturing*. New York: VCH Publishers, Inc.
- Irianto, K. 2006. *Mikrobiologi: Mengungkap Dunia Mikroorganisme Jilid 2*. Bandung: CV. Yrama Widya.
- Kumalaningsih, S. (2006). *Antioksidan Alami*. Cetakan Pertama. Surabaya: Trubus Agrisarana. Hal. 4-5 dan 16.
- Lampert LM. 1970. *Modern dairy product*. New York: Chemical Publishing Co. Inc

- Landge, V. L. 2009. Quality of Yogurt Supplemented with Whey Protein Concentrate and Effects of Whey Protein Denaturation *M.Sc. Thesis*. Kansas State University, Kansas
- Lee, W. J. dan J. A. Lucey. 2004. Structure and Physical Properties of Yogurt Gels: Effect of Inoculation Rate and Incubation Temperature. *J. Dairy Sci.* 87:3153-3164.
- Lee, W. J dan J. A. Lucey. 2010. Formation and Physical Properties of Yogurt. *Asian-Aust. J. Anim. Sci.* Vol. 23, No. 9: 1127-1136.
- Lingga L. 2010. *Cerdas Memilih Sayuran*. Jakarta: Agromedia Pustaka.
- Mastuti, R., 2010. *Pigmen Betalain pada Famili Amaranthaceae*. Malang: Basic Science.
- McGregor, J. U. and C. H White. 1986. Effect of Sweeteners on the Quality and Acceptability of Yogurt. *Journal Dairy Science.* 69, 698-703.
- Molyneux, P. (2004). *The Use of The Stable Free Radical Diphenylpicrylhydrazyl (DPPH) for Estimating Antioxidant Activity*. Songklanakarin J. Sci. Technol., 2004, 26(2): 211-219.
- Moon JK, Shibamoto T. 2009. Antioxidant assays for plant and food components. *Journal of Agricultural and Food Chemistry.* 57: 1655-1666.
- Moreno, D.A., Viguera C.G. and Gil J.I. 2008. Betalains in the era of Global Agri – Food Science, Technology and Nutritional Health, *Phytochem Rev.* Spain, 7, 261-280.
- Murdock, D. H. 2002. *Encyclopedia of Food. A Guide to Healthy Nutrition*. London : Academic Press.
- Musfira, R. A., 2008. Kajian Penyimpanan Irisan Bit (*Beta vulgaris L.*) Segar Terolah Minimal dalam Kemasan Atmosfer Termodifikasi. *Skripsi S-1*, Fakultas Teknologi Pertanian IPB, Bogor.
- Pedreno, M. A., & Escribano, J. (2000). Studying the oxidation and antiradical activity of betalain from beetroot. *Journal of Biological Education*, 35, 49–59.

- Rahman, A., S. Fardiaz, W. T. Raharju, Suliantari dan C. C. Nurwitri. 1992. *Teknologi Fermentasi Susu*. Bogor: Depdikbud dan Dirjen Dikti PAU Pangan dan Gizi IPB.
- Ravichandran, Weiss, Nerd. 2011. Pitayas (Genus *Hylocereus*): a new fruit crop for the Negev Desert of Israel. In J. Janick, *New Crops* (pp.490-495). New York: Wiley.
- Reynertson, K.A., 2007. *Phytochemical Analysis of Bioactive Constituents from Edible Myrtaceae Fruit*. The City University of New York: New York.
- Robinson, R. K. 2002. Yoghurt, Role of Starter Cultures, (dalam *Encyclopedia of Dairy Science*, H. Roginski, J. Fuquay dan P. Fox, Ed.) Academic Press, United Kingdom, 1059-1063.
- Salminen, S. dan A. Von-Wright. 1993. *Lactic Acid Bacteria*. New York: Marcel Dekker, Inc.
- Salwa, A. Aly, E.A Galal dan Neiwa, A.Elawa. 2004. Carrot Yoghurt : Sensory, Chemical, Microbiological Properties and Consumer Acceptance. *Pakistan Journal of Nutrition* 3 (6): 322-330.
- Sandine, W. E. 1976. New Techniques in Handling Lactic Cultures to Enhance Their Performance. *J. Dairy Sci.* 60 (5): 822-828.
- Santiago, E. C. dan E. M. Yahia. 2008. *Identification of Betalains from the Fruits of 10 Mexican Prickly Pear Cultivars by High-Performance Liquid Chromatography and Electrospray Ionization Mass Spectrometry*. *J. Agric. Food Chem.* 2008, 56, 5758-5764
- Scimat. 2006. *Lactobacillus delbrueckii subsp. bulgaricus*. http://www.magma.ca/~pavel/science/L_bulgaricus.htm (2 Maret 2013)
- Schuler P. 1990. Natural antioxidant exploited commercially. Di dalam: *Food Antioxidant*. Hudson BJB, editor. London and New York: Elsevier Applied Science. hlm. 123-280.

- Soukoulis, C., P. Panagiotidis, R. Koureli dan C. Tzia. 2007. Industrial Yogurt Manufacture: Monitoring of Fermentation Process and Improvement of Final Product Quality. *J. Dairy Sci.* 90: 2641-2654.
- Strack, D., Vogt, T. & Schliemann, W. 2003. Recent advances in betalain research. *Phytochemistry*, 62, 247-269.
- Sunarjono, H. 2005. *Berkebun 21 Jenis Tanaman Buah*. Jakarta: Penebar Swadaya.
- Surajudin, Fauzi R., dan D. Purnomo. 2004. *Yoghurt Susu Fermentasi yang Menyehatkan*. Jakarta: AgroMedia.
- Susanto, Yani. 2013. Pengaruh Variasi Proporsi Sari Bit Merah dan Susu UHT Terhadap Sifat Fisikokimia, Mikrobiologis, dan Sensoris Yogurt. *Skripsi-S1*, Fakultas Teknologi Pertanian universitas Katolik Widya Mandala, Surabaya
- Tamime, A. Y. dan R. K. Robinson. 1999. *Yogurt Science and Technology second edition*. England: Woodhead Publishing Limited.
- Tamime, A. Y. dan R. K. Robinson. 2007. *Tamime and Robinson's Yogurt Science and Technology third edition*. England: Woodhead Publishing Limited.
- Trachoo, N. 2002. Yogurt: The Fermented Milk. *Songklanakarin J. Sci. Technol. Vol. 24 No. 4 Oct.-Dec.2002*
- Waliwolu, 2009. *Tanaman Bit*. Available at <http://www.bitmerah.blogspot.com> (8 Agustus 2013).
- Wahyudi, M. 2006. Proses Pembuatan dan Analisis Mutu Yoghurt. *Buletin Teknik Pertanian Vol. 11 No. 1, 2006*.
- Walstra, P. dan R. Jenness. 1983. *Dairy Chemistry and Physics*. New York: John Wiley and Sons, Inc.
- Wanasunadara, P.K.J.P.D. dan F. Shahidi. 2005. *Antioxidants: Science, Technology, and Applications*. USA: John Wiley and Sons, Inc.

- Widhiana E., 2000. *Ekstraksi Bit (Beta vulgaris L.) Sebagai Alternatif Pewarna Alami Pangan*. Skripsi S-1. Fakultas Pertanian IPB, Bogor.
- Wikanta T, H.I. Januar, M. Nursid. 2005. Uji aktivitas antioksidan, toksisitas, dan sitotoksitas ekstrak alga merah *Rhodomenia palmate*. *Jurnal Penelitian Perikanan Indonesia* 11(4).
- Winarsi, H. 2007. *Antioksidan alami dan Radikal Bebas*. Jakarta: Kansius.
- Wulandari, Tini. 2009. Bit (*Beta vulgaris*). <http://www.plantamor.com/index.php?plant=197>. (8 Agustus 2013).
- Zainoldin, K.H. dan A.S. Baba. 2009. The Effect of *Hylocereus polyrhizus* and *Hylocereus undatus* on Physicochemical, Proteolysis and Antioxidant Activity in Yogurt, *International Journal of Biological and Life Sciences* 8 (2) : 93-98
- Zulfikar. 2010. *Oligosakarida*. http://www.chem-is-try.org/materi_kimia/kimia-kesehatan/biomolekul/oligosakarida/. (18 Maret 2013).