

BAB VI KESIMPULAN DAN SARAN

6.1. Kesimpulan

1. Perbedaan proporsi sukrosa dan isomalt memberikan pengaruh nyata terhadap sifat fisikokimia (kadar air, kadar gula reduksi, tekstur dan warna) *hard candy* bit merah.
2. Perbedaan proporsi sukrosa dan isomalt memberikan pengaruh nyata terhadap organoleptik (tingkat kesukaan terhadap warna, rasa, *stickiness*, dan *brittleness*) *hard candy* bit merah.
3. *Hard candy* bit merah terbaik dihasilkan dari perlakuan proporsi sukrosa:isomalt = 40:60 (I2) dengan nilai tingkat kesukaan (organoleptik) terhadap warna 4,46 (netral); rasa 5,08 (agak suka); *stickiness* 5,34 (agak suka); *brittleness* 5,24 (agak suka), memiliki kadar air 1,77%; kadar gula reduksi 0,45%; *lightness* 25,4; *redness* 1,3; *yellowness* 2,2; *hardness* 23828,781 g.sec; *fracturability* 19753,641 g.sec; dan *adhesiveness* -6,860 g.sec.

6.2. Saran

1. Perlu ditentukan formulasi isomalt dan sukrosa yang tepat untuk dapat menghasilkan *hard candy* bit merah yang dapat diterima konsumen.
2. Perlu dilakukan penelitian lebih lanjut tentang stabilitas warna selama penyimpanan.

DAFTAR PUSTAKA

- Allegra. 2005. Mechanism of Interaction of Betanin and Oncicaxanthin with Human Myeloperoxidase and Hypochlorous Acid. *Biochemical and Biophysycal Research Communications*, 332, 837-844.
- AOAC, 1984. *Offical Methods of Analysis 14th edition*. Washington D. C.: Association of Official Agricultural Chemist.
- _____. 1990. *Offical Methods of Analysis 15th edition*. Washington D. C.: Association of Official Agricultural Chemist.
- _____. 1995. *Offical Methods of Analysis 16th edition*. Washington D. C.: Association of Official Agricultural Chemist.
- Amos dan W. Purwanto. 2002. *Hard Candy dengan Flavor dari Minyak Pala*. *Jurnal Sains dan Teknologi Indonesia* Vol 4 (5):1-6.
- Anderson, L.J. 1995. The Manufacturing Confectioner: Hard Candy Formulations, Variations and Effects. *National American Association of Candy Technologists Technical Session*, Amerika, Oktober 1995.
- Ann, C.K. 2012. Pengaruh Perbedaan Konsentrasi Ekstrak Bit Merah dan Gelatin Terhadap Sifat Fisikokimia dan Organoleptik *Marshmallow Beet*. *Skripsi S-1*, Fakultas Teknologi Pertanian UKWMS, Surabaya.
- Apriyantono, A.D., N.L. Fardiaz, S. Puspitasari, dan S. Budiyantono. 1989. *Analisis Pangan*. Pusat Antar Universitas Pangan dan Gizi Institut Pertanian. Bogor: IPB Press.
- Astawan, M. 2008. *Khasiat Warna-Warni Makanan*. Jakarta: PT. Gramedia Pustaka Utama.
- Azeredo, M.C. 2009. Betalains: Properties, Sources, Applications, and Stability. *Journal Food Science and Technology*. 44: 2365-2376.
- Azeredo, M.C., A.C. Pereira, A.C.R. Souza, S.T. Gouveia, and K.C.B. Mendes. 2009. Study on Efficiency of Betacyanin Extraction from Red Beetroots. *Journal Food Science and Technology*. 44: 2464-2469.

- Badan Standarisasi Nasional. 2010. *Syarat Mutu Hard Candy*. Jakarta: Badan Standarisasi Nasional.
- Branen, A.L., D. Michael and S. Salminen. 2002. *Food Additives 2nd Edition*. New York: Marcel Dekker, Inc.
- DeGarmo, E. P., W.G. Sullivan and J.A. Bontadelli. 1993. *Engineering Economy, 9th edition*. New York: Macmillan Publishing Company.
- DeMan, J. M. 1990. *Principle of Food Chemistry 2nd Edition*. New York: Van Nostrand Reinhold.
- Departemen Perindustrian. 1994. *SII (Standar Industri Indonesia) No. 0716.89*. Jakarta: Badan Standarisasi Nasional.
- Dixit, S., R.C. Pandey, M. Das, and S.K. Khanna. 1995. Food Quality Surveillance on Colours in Eatables Sold in Rural Market of Uttar Pradesh. *Journal Food Science and Technology*. 32:375-376.
- Edwards, W. P. 2000. *The Science of Sugar Confectionery*. UK: RSC Publishing.
- Ebookpangan. 2006. *Teknologi Pembuatan Permen*. <http://www.ebookpangan.com> (10 Desember 2012)
- Food Sulekha. 2012. *Beetroot*. <http://food.sulekha.com/recipes-with-ingredient-beetroot.htm> (19 November 2012).
- Hartel, R.W. 1993. *Controlling Sugar Crystallization in Food Products*. Chicago: Institute of Food Technologist, The Society for Food Science and Technology.
- Haryati, A., 1999. Pengaruh Penambahan Sulfit terhadap Kerusakan Vitamin C Permen Jelly Gelatin Jambu Biji. *Skripsi S-1*, Fakultas Pertanian IPB, Bogor.
- Kardian, S.S. and Sharma. 2013. Stability and Application of Crude Beetroot Extracts in Different Food Products. *International Journal of Biology, Pharmacy and Allied Sciences*. 2(3): 693-698.

- Koswara, S. 2006. *Teknologi Pembuatan Permen*. <http://www.ebookpangan.com/Member/DOWNLOADAREA/Teknologi%20Pembuatan%20Permen.pdf> (10 November 2012).
- Kurniawati, E. 2008. Pengaruh Proporsi Sukrosa dan Isomalt Terhadap Sifat Fisikokimia dan Organoleptik Permen Keras *Reduced Sugar*. *Skripsi S-1*, Fakultas Teknologi Pertanian UKWMS, Surabaya.
- Lingga L. 2010. *Cerdas Memilih Sayuran*. Jakarta: Agromedia Pustaka.
- Look Chem. 2012. *Isomalt*. http://www.lookchem.com/Product_1483151/CasNo_64519-82-0/Isomalt.html (19 November 2012).
- Mastuti, R., 2010. Pigmen Betalain pada Famili Amaranthaceae. *Seminar Basic Science*, Malang, 20 Februari 2010.
- Minolta. 2007. *Precise Color Communication*. Japan: Konica Minolta Sensing, Inc.
- Nation Master. 2012. *Sugar Substitute*. <http://www.nationmaster.com/encyclopedia/Sugar-substitute> (10 November 2012).
- Nabors, L.O. and R.C. Gelardi. 1991. *Alternative Sweeteners Second Edition*. New York: Marcel Dekker Inc.
- Neelwarne, B. 2013. *Red Beet Biotechnology: Food and Pharmaceutical Applications*. New York: Springer.
- Nicol, W.M. 1982. *Sucrose and Technology*. London: Applied Science Publication.
- Nutrition Data. 2012. *Beets Raw*. <http://nutritiondata.self.com/facts/vegetables-and-vegetable-products/2348/2> (19 November 2012).
- O'Donnell, K. and K. Malcolm. 2012. *Sweeteners and Sugar Alternatives in Food Technology*. Oxford: Willey Blackwell.
- Pedro, L.L., L.M. Leticia, I.M.R. Luis, W. Katarzyna, W. Kazimierz, and A.H. Judith. 1997. Extraction of Sunset Yellow and Tartrazine by Ion-pair Formation With Adogen-464 and Their Simultaneous

Determination by Bivariate Calibration and Derivative Spectrophotometry. *Analyst*. 122 : 1575 – 1579.

- Pennington, N.L. and C.W. Baker. 1990. *Sugar A User's Guide to Sucrose*. New York: Van Nostrand Reinhold.
- Richana, N., P. Lestari, N. Chilmijati dan S. Widowati. 1999. *Karakteristik Bahan Berpati (Tapioka, Garut dan Sagu) dan Pemanfaatannya menjadi Glukosa Cair*. Prosiding PATPI. <http://www.balitserea.litbang.deptan.go.id/bjagung/duatiga.pdf> (10 November 2012).
- Sastrohamijojo, H.. 2005. *Kimia Organik Karbohidrat, Lemak dan Protein*. Yogyakarta: Gadjah Mada University Press.
- Steenis, V. 2005. *Flora*. Jakarta: PT. Pradnya Paramita.
- Strater, P. J. and W.E. Irwin. 1991. Isomalt (dalam *Alternative Sweeteners Second Edition*, Nabors, L.O., dan R.C. Gelardi.). New York: Marcel Dekker. Inc.
- Srilakshmi. 2005. *Food Science 3rd edition*. New Delhi: New Age International Ltd.
- Stintzing, F. C., A. Schieber, and R. Carle. 2002. Betacyanins in fruits from red-purple pitaya, *Hylocereus polyrhizus* (Weber) Britton and Rose. *Food Chemistry* 77: 101–106.
- Sudarmadji, S., B. Haryono, dan Suhardi. 1997. *Prosedur Analisa Untuk Bahan Makanan dan Pertanian*. Yogyakarta: Liberty.
- Sunarjono, H.H. 2004. *Bertanam 30 Jenis Sayur*. Jakarta: Penebar Swadaya.
- Troy, D. B. and P. Beringer. 2006. *Remington: The Science and Practice of Pharmacy*. USA: Lippincott Williams & Wilkins.
- Tjokroadikoesoemo, S. 1986. *HFS dan Industri Ubi Kayu Lainnya*. Jakarta: Gramedia.
- USDA. 2012. *Plants Profile: Beta vulgaris L.*. <http://plants.usda.gov/java/profile?symbol=BEVU2> (19 November 2012).

- Usmiati, S. dan S. Yuliani. 2004. *Pemanis Alami dan Buatan untuk Kesehatan. Warta Penelitian dan Pengembangan Tanaman Industri* 10(1): 13–17.
- Vries, J. 1996. *Food Safety and Toxicity*. London: CRC.
- Waliwolu, 2009. *Tanaman Bit*. www.bitmerah.blogspot.com (2 November 2012).
- Widhiana E., 2000. Ekstraksi Bit (*Beta vulgaris I. var. rubra I.*) sebagai Alternatif Pewarna Alami Pangan. *Skripsi S-1*, Fakultas Pertanian IPB, Bogor.
- Widyastuti, D. U., V. R. B. Prasatya, F. Kristinawati and K. P. Dwiana, 2009. Physicochemical and Sensory Analysis of *Marshmallow* with Red *Beet (Beta vulgaris)* Extract, *National Student Conference on Food Science and Technology*, Yogyakarta, 21 Oktober 2009.
- Winarno, F.G. 2002. *Flavor Bagi Industri Pangan*. Bogor: M-Brio Press.
- World Intellectual Property Organization. 2011. Confectionary Products Containing Erythritol. *International Bureau*. WO 2011/107234 A1.