

BAB 5

SIMPULAN DAN ALUR PENELITIAN SELANJUTNYA

5.1. Simpulan

Berdasarkan hasil pengamatan dan pembahasan dari uji yang dilakukan dalam penelitian ini, maka dapat disimpulkan bahwa:

1. Sediaan obat kumur yang mengandung minyak cengkeh 1% (v/v) dan 0,75% (v/v) juga tween 80 pada masing-masing formula sebesar 5% mempunyai efek bakterisid sedangkan sediaan obat kumur yang mengandung minyak cengkeh 0,5% (v/v) juga tween 80 sebesar 5% mempunyai efek bakteriostatik terhadap *Streptococcus mutans* dan *Streptococcus pyogenes*.
2. Ada perbedaan efek bakterisid antara sediaan obat kumur yang mengandung minyak cengkeh 1% (v/v) dan 0,75% (v/v) terhadap *Streptococcus mutans* dan *Streptococcus pyogenes*. Sediaan obat kumur formula A (minyak cengkeh 1% v/v) mempunyai efek bakterisid yang lebih besar daripada B (minyak cengkeh 0,75% v/v).

5.2. Alur Penelitian Selanjutnya

Untuk lebih mengetahui efek bakterisid dari sediaan obat kumur yang mengandung bahan aktif minyak cengkeh ini, maka diperlukan pengujian secara *in vitro* lebih lanjut terhadap mikroorganisme lain seperti kapang dan bakteri Gram negatif yang terdapat di mulut. Juga diperlukannya pengujian lebih lanjut menggunakan jenis surfaktan yang lain yang dapat memberikan stabilitas fisik dan daya antibakteri yang lebih baik.

DAFTAR PUSTAKA

- Agusta, A., 2000, **Minyak Atsiri Tumbuhan Tropika Indonesia**, ITB, Bandung, 8, 17, 77.
- Anief, M., 2000, **Farmasetika**, Gadjah Mada University Press, Yogyakarta, 129.
- Ansel, H. C., 1985, **Introduction to Pharmaceutical Dosage Formulation**, 4th ed., Lea & Febiger, Philadelphia, 209-231.
- Backer, C. A. and R. C. Bakhuizen Van der Brink, 1963, **Flora of Java: Spermatophytes Only**, Groningen P. Noordhoff, Groningen, 333-346.
- Bailey, W. R. and E. G. Scott, 1974, **Diagnostic Microbiology**, 4th ed., The C.V.Mosby Company, Saint Louis, 12-14, 116, 314-317, 323, 387, 397-398, 400-401.
- Barnes, J., L. A. Anderson, and J. D. Phillipson, 2002, **Herbal Medicines**, 2nd ed., Pharmaceutical Press, London, 139.
- Bauer, K. [1996]. Mikrobiologi Dasar. [Online]. <http://www.scribd.com/doc/160288/mikrobiologi-dasar>. [2009, Sept 27].
- Broyn, R. D. [2001]. The Human Toxicology Of Dimethyl Sulfoxide. [Online]. <http://www.dmso.org/articles/information/brobyn.html>. [2010, Jan 23].
- Brooks, G. F., J. S. Butel, and S. A. Morse, 2001, **Medical Microbiology**, 22nd ed., McGraw-Hill Companies Inc., Boston, 281, 327-341.
- Departemen Kesehatan Republik Indonesia, 1989, **Materia Medika Indonesia V**, Departemen Kesehatan Republik Indonesia, Jakarta, 120-124.
- Departemen Kesehatan Republik Indonesia, 1995, **Farmakope Indonesia IV**, Departemen Kesehatan Republik Indonesia, Jakarta, 48, 588, 687, 750.
- Departemen Kesehatan Republik Indonesia, 1995, **Materia Medika Indonesia VI**, Departemen Kesehatan Republik Indonesia, Jakarta, 55.

Didry, N., L. Dubreuil, and M. Pinkas, 1994, Activity of thymol, carvacrol, cinnamaldehyde and eugenol on oral bacteria, **Pharmaceutica Acta Helvetiae**, 69, 25-28.

Direktorat Jendral Pengawasan Obat dan Makanan, 1985, **Cara Pembuatan Simplisia**, Departemen Kesehatan Republik Indonesia, Jakarta, 4-5, 105-131.

Dittert, L. W., 1974, **Sprowl's American Pharmacy**, 7th ed., J.B. Lippincott Company, Philadelphia, 209-301.

Filgueiras, C. T. and M. C. D. Vanetti, 2006, Effect of Eugenol on Growth and Listeriolysin Production by *Listeria Monocytogenes*, **Brazilian Archives of Biology and Technology**, 49(3), 405-408.

Gilbert, P., 1987, Principles of microbial pathogenicity and epidemiology, in: **Pharmaceutical Microbiology**, W. B. Hugo and A. D. Russell (Eds.), 4th ed., Blackwell Scientific Publications, Oxford, 84-85, 87, 91.

Green, J. M., 1996, A practical guide to analytical method validation, **Analytical Chemistry**, 23, 305-309.

Green, J., 2005, **Natural Treatment for Life-Treating Diseases**, Alternative Medicine Institute, Los Angeles, 8, 9, 11, 113.

Gronroos, L. [1998]. General Bacteriological Aspect of *Streptococcus mutans*. [Online]. <http://ethesis.helsinki.fi/julkaisut/laa/hamma.html>. [2008, November 10].

Hardianto. [2008, April 15]. Oral Hygiene. [Online]. http://dwi-forever.blogspot.com/2008_04_01_archive.html. [2008, November 3].

Hoover, J., 1990, **Remington**, 18th ed., Mack Publishing Company, Easton Pennsylvania, 267-306.

Hoover, J., 2000, **Remington**, 20th ed., Mack Publishing Company, Easton Pennsylvania, 310-312.

Hugo, W. B. and A. D. Russell, 1987, Evaluation of non antibiotic antibacterial agents, in: **Pharmaceutical Microbiology**, W. B. Hugo and A. D. Russell (Eds.), 4th ed., Blackwell Scientific Publications, Oxford, 267.

- Joklik, W. K., H. P. Willet, and D. B. Amos, 1980, **Zinsser Microbiology**, 17th ed., Appleton Century Crofts, New York, 539-540, 568-570.
- Kabara, J. J, 1984, **Cosmetic and Drug Preservation**, Marcel Dekker, Inc., New York, 266.
- Ketaren, S., 1990. **Minyak Atsiri**, jil. 4B, Universitas Indonesia, Jakarta, 480-494.
- Kibbe, A. H., 2000, **Handbook of Pharmaceutical Excipients**, 3rd ed., Pharmaceutical Press, London, 7, 140, 417-418, 482.
- Lim, D., 1998, **Microbiology**, 2nd ed., Mc Graw Hill Companies, Inc., Boston, 448, 514-515.
- Lorian, V., 1991, **Antibiotic in Laboratory Medicine**, 3rd ed., Williams and Wilkins, Baltimore, 1-14.
- Lund, W., 1994, **The Pharmaceutical Codex Principles and Practice of Pharmaceutics**, 12th ed., Pharmaceutical Press, London, 84, 577-600.
- Mac Faddin, J. F., 1980, **Biochemical Test for Identification of Medical Bacteria**, 2nd ed., William and Wilkins, Baltimore, 173-181, 209-213, 308-316.
- Madigan, M. T., J. M. Martinko, P. V. Dunlap, and D. P. Clark, 2008, **Biology of Microorganisms**, 12th ed., Pearson Benjamin Cummings, San Francisco, 448-449, 812-813, 815-817, 824, 837, 966-968.
- Martin, A., P. Bustamante, and A. H. C. Chun, 1993, **Physical Pharmacy: Physical Chemical Principles in the Pharmaceutical Science**, 4th ed., Lea & Febinger, Philadelphia, 236, 330-339, 396-398, 410-414, 461-462, 486-496.
- Mitchell, W. A., Jr., 2003, **Plant Medicine in Practice**, Churchill Livingstone, Saint Louis, 73.
- Mitsui, T., 1993, **New Cosmetic Science**, Interscience Publishing, Tokyo, 480-482, 488.

Natural Standard Research Collaboration. [2008, Agustus 1]. Clove (*Eugenia aromatica*) and Clove oil (Eugenol). [Online]. <http://www.nlm.nih.gov/medlineplus/druginfo/natural/patient-clove.html#skip>. [2008, Agustus 9].

Pader, M. & Elton, C.T. [1979, April 17]. Mouthwash. [Online]. <http://www.freepatentsonline.com/4150151.html>. [2008, Agustus 9].

Pader, M., 1989, **Oral Hygiene Product and Practice**, Marcel Dekker, Inc., New York, 489-515.

Pharmaceutical Press, 1981, **Martindale: The Extra Pharmacopoeia**, 28th ed., Pharmaceutical Press, London, 674-676, 1452.

Pharmaceutical Press, 1991, **Martindale: The Complete Drug Reference**, 32nd ed., Pharmaceutical Press, London, 1127.

Prabuseenivasan, S., M. Jayakumar, and S. Ignacimuthu, 2006, *In vitro* antibacterial activity of some plant essential oils. **BMC Complementary and Alternative Medicine**. 6. 362-365.

Prijantojo, 1996, Antiseptik sebagai obat kumur - peranannya terhadap pembentukan plak gigi dan radang gusi, **Cermin Dunia Kedokteran**, 113, 28-32.

Rieger, M. M., H. A. Lieberman, and G. S. Bunker, 1988, **Pharmaceutical Dosage Form: Dysperse System**, volume 1. Marcel Dekker. Inc., New York, 335-338.

Rosenthal, M. W., 1972, Mouthwashes, in: **Cosmetics Science And Technology**, M. S. Balsam and E. Sagarin (Eds.), 2nd ed., Wiley-Interscience, New York, 534-535, 550.

Schott, H. and A. N. Martin, 1974, Colloidal and surface chemical aspects of dosage forms. In: **Sprawls' American Pharmacy**, L. W. Dittert (Ed.), 7th ed., J.B. Lippincott Company, Philadelphia, 151.

Scott, B. A., 1973, Mouthwashes, in: **Harry's Cosmeticology**, J. B. Wilkinson (Ed.), 6th ed., Chemical Publishing Co. Inc., New York, 534-535.

Scott, E. M. and S. P. Gorman, 1987, Chemical disinfectants, antiseptics and preservatives, in: **Pharmaceutical Microbiology**, W. B. Hugo and A. D. Russell (Eds.), 4th ed., Blackwell Scientific Publications, Oxford, 227.

Siswandono dan B. Soekardjo, 2000, **Kimia Medisinal**, jil. 2, Airlangga University Press, Surabaya, 12, 21.

Soerodjo, T. S., 1989, **Respon Imun Humoral terhadap Streptococcus mutans sehubungan dengan Penyakit Karies Gigi**, Universitas Airlangga, Surabaya, 18, 21, 25, 27-29, 58.

Standar Nasional Indonesia, 2006, **Minyak Daun Cengkeh**, Badan Standardisasi Indonesia, 1-11.

Sujianto, A. E., 2007, **Aplikasi Statistik dengan SPSS untuk Pemula**. Prestasi Pustaka, Jakarta, 112-114.

Swarbrick, J. and J. C. Boylan, 1996, **Encyclopedia of Pharmaceutical Technology**, vol. 14, Marcel Dekker, New York, 295-331.

Talaro, K. P. and A. Talaro, 1999, **Foundations in Microbiology**, 3rd ed., The McGraw-Hill Companies, Boston, 112-114, 205-208, 396, 570-571, 577-579, 678-679.

Tan, L. S., 1999, **Uji Daya Antibakteri Komponen Minyak Atsiri Bunga Cengkeh (*Syzygium aromatici Flos*) terhadap *Staphylococcus aureus* dan *Escherichia coli* dengan Cara Biogram**, skripsi sarjana, Unika Widya Mandala, Surabaya, 93.

Tortora, G. J., B. R. Funke, and C. L. Case, 2001, **Microbiology an Introduction**, 7th ed., Addison Wesley Longman, Inc., San Francisco, 19, 174-175, 323, 407-409, 686.

United States of Pharmacopeial Convention, 1995, **United States of Pharmacopeia**, 23st ed., United States of Pharmacopeial Convention, Inc., Rockville, 2748-2751.

Van Steenis, c. G. G. J., 2005, **Flora**, terjemahan M. Surjowinoto, S. Hardjosuwarno, S. S. Adisewojo, Wibisono, M. Partodidjojo, dan S. Wirjahardja, PT Pradnya Paramita, Jakarta, 317-318.

Wagner, H., S. Bladt, and E. M. Zgainski, 1984, **Plant Drug Analysis: A Thin Layer Chromatography Atlas**. Spinger-Verlag, Berlin, 42-43.

Warsa, U. C., 1993, **Buku Ajar Mikrobiologi Kedokteran**, edisi revisi, Binarupa Aksara, Jakarta, 112-122.

White, R. F., 1964, **Pharmaceutical Emulsions and Emulsifying Agent**, 4th ed., The Chemist and Drugust, London, 4-62, 118-120.

Wijayakusuma, H., 1996, **Tanaman Berkhasiat Obat di Indonesia**, jil. 4, Pustaka Kartini, Jakarta, 36.

Wilkins, E., 1991, **Clinical Practice of Dental Hygienist**, 3rd ed., Balliere Tyndall, London, 279, 309-310.

Wikipedia. [2010, Jan 18]. Dimethyl sulfoxide. [Online]. http://en.wikipedia.org/wiki/Dimethyl_sulfoxide.html. [2010, Jan 23].

WSOC. [2007, Mei 4]. Dental Disease. [Online]. <http://www.wsoctv.com/health/13258090/detail.html>. [2008, Juli 10].