

## **BAB VI PENUTUP**

### **6.1. Kesimpulan**

1. Tingkat pengenceran minyak atsiri jahe berpengaruh sebagai bahan penghambatan pertumbuhan bakteri yogurt (LB dan ST) dan mikroba patogen (EC dan SA) dan pertumbuhan bakteri yang dihasilkan. Semakin kecil tingkat pengenceran maka semakin besar zona penghambatan yang dihasilkan yang dihasilkan.
2. Perlakuan yang paling dapat menghambat pertumbuhan mikroba SA, EC, ST berdasarkan uji difusi sumur adalah adanya perbedaan nyata pengaruh minyak atsiri jahe tanpa pengenceran dengan zona penghambatan SA 2.45 cm bakterisidal, EC 1.24 cm bakterisidal, ST 1.3 cm bakteriostatik.
3. Minyak atsiri jahe tidak mampu menghambat pertumbuhan LB pada perlakuan minyak atsiri tanpa pengenceran sampai pada pengenceran tertinggi yaitu 20x.

### **6.2. Saran**

1. Perlu adanya pengujian untuk mengetahui seberapa kekuatan s-layer pada LB dalam menghadapi senyawa antimikroba khususnya minyak atsiri Jahe.

## DAFTAR PUSTAKA

- Anonimous<sup>1</sup>,2008. *Staphylococcus aureus*. [http://food doctors.com](http://fooddoctors.com). (19 September 2010)
- Anonimous<sup>2</sup>,2011. *Escherichia coli*. <http://bacteria.com>. (4 Februari 2011)
- Atai Z., Manijeh A., and M. Maryam, 2009. *Inhibitory Effect of Ginger Extract on Candida albicans*. Iran : American Journal of Applied Sciences 6 (6)
- Aureus: A Substantiate Computational Approach*, India: International Journal of Biomedical Science vol 4 (9): 1992-1996
- Azu N.,R. and A. Onyeagba. 2007. *Antimicrobial Properties of Extracts of Allium cepa (Onion) and Zingiber officinale (Ginger) on Escherichia coli, Salmonella typhi, and Bacillus subtilis*. *The Internet Journal of Tropical medicine* Vol 3 No. 2
- Baroty G. S, H. H. A. E. Baky , R. S. Farag and M. A. Saleh., 2010. *Characterization of antioxidant and antimicrobial compounds of cinnamon and ginger essential oils*, Cairo : African Journal of Biochemistry Research Vol. 4(6) pp 167-174
- Barry A. L.1991. *Procedures and Theoretical Consideration for Testing Antimicrobial Agent in Agar Media*. New York : Departement of Epidemiology and Infection Control.
- Behrad S., M.Y. Yusof, K. L. Goh, A.S. Baba. 2009. Manipulation of Probiotics Fermentation of Yogurt by *Cinnamon* and *Licorice*: Effects on Yogurt Formation and Inhibition of *Helicobacter Pylori* Growth *in vitro*. Malaysia: World Academy of Science, Engineering and Technology 60 (20): 63-68
- Bennet, S dan V. John 1966. *Simplified, Accurate Method for Antibiotic Assay of Clinical Specimens*. Washington: American Society for Microbiology.
- Brooks, G. J. S. Butel, S. A. Morse. 2004. *Mikrobiologi Kedokteran*. New York : McGrawHill Company. Inc

- Chandarana H., S. baluja, V. Sumitra 2004. *Comparison of antibacterial activities of selected species of Zingiberaceae family and some synthetic compounds. Journal of bioscience* vol 29 pages 83-97
- Cowan M., 1999. *Plant Product as Antimicrobial agents. Clinical Microbiology Reviews.* p.564-582
- Desperindag. 2004. *Komponen Volatil Minyak Atsiri*, Jakarta Departemen Perindustri dan Perdagangan Republik Indonesia
- Daisy P., Salu M., Suveena S., Nirmala A. Rayan., 2008. *A Novel Terpenoid from Elephantopus Scaber Antibacterial Activity on Staphylococcus*
- Erdoglu O., F. Erbulur., 2005. *Isolation And Characterization Of Lactobacillus Bulgaricus And Lactobacillus Casei From Various Foods. Journal of bioscience*
- Fardiaz, S. 1989. *Mikrobiologi Pangan: Penuntun Praktek Laboratorium.* Bogor: IPB Jurusan Teknologi Pangan dan Gizi.
- Fessenden, R. and J.S. Fessenden. 1999. *Kimia Organik.* Penerjemah: Pudjaatmaka, A.H. Jilid II. Edisi ketiga. Jakarta: Erlangga.
- Guenther, E. 1987. *Minyak Atsiri Jilid 1.* Jakarta : Penerbit Universitas Indonesia
- James, L. 2005. *The essential oil of ginger, Zingiber officinale, and anaesthesia. The International Journal of Aromatherapy* vol 15, Pages 7-14
- Juliantina, F., d. A. Citra, bunga nirwani ,t.nurmasitoh, e.t. bowo.2000. *Manfaat sirih merah (piper crocatum) sebagai agen anti Bakterial terhadap bakteri gram positif dan gram Negatif. Journal Kedokteran dan kesehatan Indonesia*
- Krishnamurthy, N., E. S. Nambudiri, A. G. Mathewand, Y. W. Lewis,1970. *Essential oil of ginger.* Indian Perfumer, 14(1):1-3
- Kubo, I., M. Himejema, and H. Muroi,. 1991. *Antimicrobial activity of flavor components of cardamom Elettaria cardamomum*

(Zingiberaceae). *Journal of Agricultural and Food Chemistry*, 39 (11): 1984-1986

Malaka M., dan L. Amran., 2005. Isolasi dan Identifikasi *Lactobacillus Bulgaricus* Strain Ropy Dari Yoghurt Komersial. Makassar: Sains & Teknologi, April 2005, Vol. 5 No. 1: 50 - 58

Norajit, K., N. Laohakunjit., and O. Kerdchoechuen. 2007. *Antibacterial Effect of Five Zingiberaceae Essential Oils*. *Molecules* 12, 2047-2060

Philip, K., S. Nurestri, W. Sani., S. K. Shin, S. Kumar. 2009. *Antimicrobial activity of some Medicinal Plant from Malaysia*. *American Journal of Applied science* 6. Pages 1613-1617

Pelzcar, M.J., R.D. Raid and E.C.S. Chan. 1977. *Microbiology*. New Delhi: Tata Mc Graw-Hill.

Rizzotti, L., Federica, D. Franco , T. Sandra , 2009. *Characteristic of Tetracycline Resistant Streptococcus Thermophilus Isolates From Italian Soft Cheese*. Verona : American Society for Microbiology

Sartika R. A. D., M. I. Yvonne, dan S. Trini. 2005. *Analisis Mikrobiologi Escherichia Coli O157:H7 Pada Hasil Olahan Hewan Sapi Dalam Proses Produksinya*. Depok : Makara, Kesehatan, Vol. 9

Sasidharan I., M. Nirmala, 2010. *Comparative chemical composition and antimicrobial activity fresh & dry Ginger oils (zingiber officinale roscoe)*. *International Journal of Current Pharmaceutical Research*

Scimat, 2006. *Lactobacillus dellbrueckii*. [http://www.magma.ca/pavel/science/L\\_bulgaricus.htm](http://www.magma.ca/pavel/science/L_bulgaricus.htm) (5 Desember 2005)

Sozzi, T dan B. Martin., 1980. Antibiotic Resistance of Yogurt Starter Cultures *Streptococcus thermophilus* and *Lactobacillus Bulgaricus*. Switzerland : Applied and Environmental Microbiology

Swenson J. M., R. R. Facklam, And C. Thornsberry. 1990. *Antimicrobial Susceptibility of Vancomycin-Resistant Leuconostoc, Pediococcus, and Lactobacillus Species*. Georgia: American Society for Microbiology

Ward H., 1936. *The Medicinal, Toilet, Culinary and other Uses of 130 of the most Commonly Used Herbs*. London : The Southwest School of Botanical Medicine