Silk Fibroin Bandage the Drug Delivery Model with Honey Combination as Alternative of Antibiotics

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I. Abstract

In this study, the author realized the using of antibiotics in all aspects should be avoided as possible as we could. Using antibiotics in all aspects irregularly will cause more antibiotic primary issue, that is Antibiotics Resistance. Scientists, researchers, pharmacists and doctors are trying to find any solutions for antibiotics resistance not only with low dosage of antibiotic but figure out innovation. This study would be applied as alternative of antibiotics with natural compounds. The formula of silk and alginate created a natural bandage that could stimulate regeneration on wound. Silk had been chosen to be base of the formula because silk has very strong and very stable structure. Silk protein that usually called fibroin was used on this formula not because the perfection of its structure, as in Gita Cahya Eka Darma study about *Self-Assembled Polyelectrolyte Complex of Silk Fibroin with Alginate as Drug Delivery Model* (2015) that fibroin protein has a therapeutic effect in the treatment of wounds which increase the attachment of fibroblasts (factor in collagen synthesis) on the wound. Therefore, it may recover the wound faster and decrease bleeding time. This silk bandage formulated with combination of honey. Honey already known as super compound of nature that has many roles such as natural antibiotic, natural anti-inflammatory, etc. M. Aurongzeb and M. Kamran Azim (2011) said honey has a lot of interesting bioactivities including antinociceptive, immuno-modulatory and nematicidal activities with in vitro studies indicated potentially beneficial effects of honey on human platelets and blood coagulation proteins. Manisha and Shyamapada reported on their journal (2011) that honey is an ancient remedy for the treatment of infected wounds which has recently been 'rediscovered' by the medical profession and Aristotle (384-322 BC), when discussing different honeys, referred to pale honey as being "good as a salve for sore eyes and wounds". Allen KL *et al* (2000) honey is effective against methicillin-resistant *S. aureus* (MRSA), β-*haemolytic streptococci* and vancomycin-resistant *Enterococci* (VRE) that have been revealed by laboratory studies. Those cases supported this silk bandage formula to be combined with honey to press the number of using antibiotic drugs. Besides decrease the number of Antibiotics-Resistance.

II. Image:

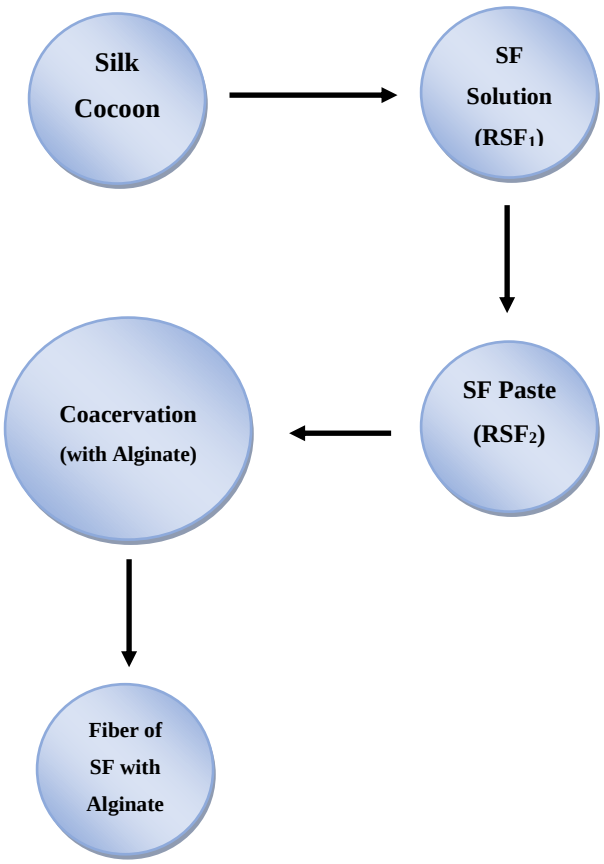


Fig. 1 Formula Procedure Framework (Eka Darma, 2015)

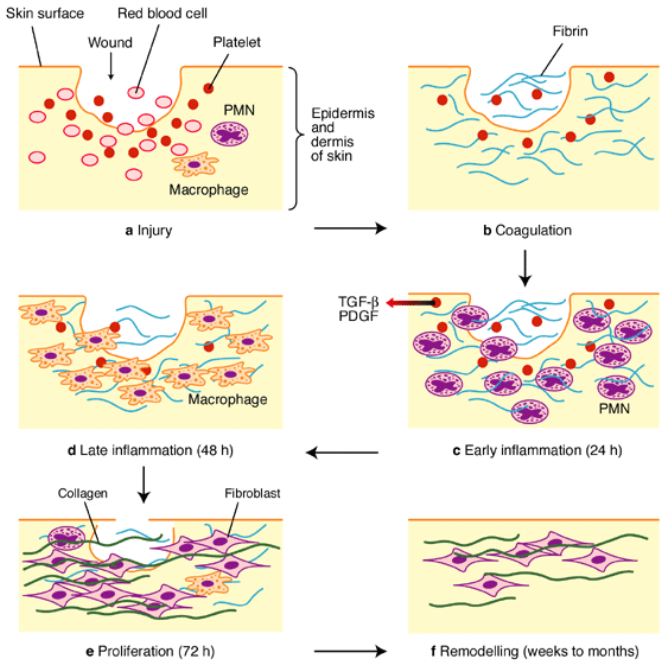


Fig. 2 Illustration of healing wound phase Expert Reviews in Molecular (Medicine ©2003 Cambrige University Press).

III. Reference:

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2 Eka Darma, Gita Cahya. 2015. *Self-Assembled Polyelectrolyte Complex of Silk Fibroin with Alginate as Drug Delivery Model.* Bandung, Indonesia: Bandung Institute of Technology. Available at: https://www.researchgate.net/publication/323345271_PEMBENTUKAN_SPONTAN_KOMPLEK_POLIELEKTROLIT_FIBROIN_SUTERA_DENGAN_ALGINAT_SEBAGAI_MODEL_PENGHANTARAN_OBAT ----------.

3 Mandal, Manisha Deb and Mandal, Shyamapada. 2011. *Honey: its medicinal property and antibacterial activity.* Asian Pac J Trop Biomed. 2011 Apr; 1(2): 154–160. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3609166/.

4 Allen KL, Hutchinson G, Molan PC. *The potential for using honey to treat wounds infected with MRSA and VRE.* First World Healing Congress, Melbourne, Australia. 2000: 10–13. Available at: https://scholar.google.com/scholar_lookup?journal=First+World+Healing+Congress,+Melbourne,+Australia&title=The+potential+for+using+honey+to+treat+wounds+infected+with+MRSA+and+VRE&author=KL+Allen&author=G+Hutchinson&author=PC+Molan&publication_year=2000&pages=10-13&.

IV. Biography:

Muhammad Bilgary Utama is a pharmacy student in Bandung Islamic University, Indonesia. He is accomplishing his Bachelor Program. He had become Team Expert Staff of External Division in ISMAFARSI Organization. He is one of the authors of Implementation of Halal Products on Moslem Traveler's Awareness paper and participant of World Bank Group Youth Summit 2018 in World Bank Headquarters, Washington, DC-United States of America on December 3rd-4th, 2018.

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