

REFERENCES

- Abad, L.V., Relleve, L.S., Aranilla, C.T., and Dela Rosa, A.M. (2003) Properties of radiation synthesized PVP-kappa carrageenan hydrogel blends. Radiation Physics and Chemistry 68(5), 901-908.
- Aramwit, P., Kanokpanont, S., De-Eknamkul, W., and Srichana, T. (2009) Monitoring of inflammatory mediators induced by silk sericin. Journal of Bioscience and Bioengineering 107(5), 556-561.
- Aramwit, P. and Sangcakul, A. (2007) The effects of sericin cream on wound healing in rats. Bioscience Biotechnology and Biochemistry 71(10), 2473.
- Atchison, J.S. and Schauer, C.L. (2012) Fabrication and Characterization of Electrospun Pristine and Fluorescent Composite Poly (acrylic acid) Ultra-Fine Fibers. Journal of Engineered Fabrics & Fibers 7(3), 50-57.
- Attwood, A. (1989) Calcium alginate dressing accelerates split skin graft donor site healing. British Journal of Plastic Surgery 42(4), 373-379.
- Boateng, J.S., Matthews, K.H., Stevens, H.N., and Eccleston, G.M. (2008) Wound healing dressings and drug delivery systems: a review. Journal of Pharmaceutical Sciences 97(8), 2892-2923.
- Bolton, L. and Van Rijswijk, L. (1991) Wound dressings: meeting clinical and biological needs. Dermatology Nursing/Dermatology Nurses' Association 3(3), 146-161.
- Brett, D.W. (2006) A discussion of silver as an antimicrobial agent: alleviating the confusion. Ostomy/Wound Management 52(1), 34-41.
- Brunton, L.L., Chabner, B.A., and Knollmann, B.C. (2006) As Bases Farmacológicas da Terapêutica de Goodman & Gilman: Brasil: McGraw Hill.
- Burrell, R.E. (2003) A scientific perspective on the use of topical silver preparations. Ostomy Wound Management 49(5; SUPP), 19-24.
- Chen, D.-H. and Chen, Y.-Y. (2002) Synthesis of strontium ferrite nanoparticles by coprecipitation in the presence of polyacrylic acid. Materials Research Bulletin 37(4), 801-810.

- Chen, J.-P., Chang, G.-Y., and Chen, J.-K. (2008) Electrospun collagen/chitosan nanofibrous membrane as wound dressing. Colloids and Surfaces A: Physicochemical and Engineering Aspects 313, 183-188.
- Collins, P.M. (1997) Dictionary of Carbohydrates: Florida: CRC Press.
- Cooper, M.L., Boyce, S.T., Hansbrough, J.F., Foreman, T.J., and Frank, D.H. (1990) Cytotoxicity to cultured human keratinocytes of topical antimicrobial agents. Journal of Surgical Research 48(3), 190-195.
- Cui, W., Li, X., Zhu, X., Yu, G., Zhou, S., and Weng, J. (2006) Investigation of drug release and matrix degradation of electrospun poly (DL-lactide) fibers with paracetamol inoculation. Biomacromolecules 7(5), 1623-1629.
- Daniel, M.-C. and Astruc, D. (2004) Gold nanoparticles: assembly, supramolecular chemistry, quantum-size-related properties, and applications toward biology, catalysis, and nanotechnology. Chemical Reviews 104(1), 293-346.
- Deng, C.-M., He, L.-Z., Zhao, M., Yang, D., and Liu, Y. (2007) Biological properties of the chitosan-gelatin sponge wound dressing. Carbohydrate Polymers 69(3), 583-589.
- Enoch, S. and Leaper, D.J. (2008) Basic science of wound healing. Surgery (Oxford) 26(2), 31-37.
- Gao, J., Fu, J., Lin, C., Lin, J., Han, Y., Yu, X., and Pan, C. (2004) Formation and photoluminescence of silver nanoparticles stabilized by a two-armed polymer with a crown ether core. Langmuir 20(22), 9775-9779.
- Geckeler, K.E. and Rosenberg, E. (2006) Functional nanomaterials: Valencia: American Scientific Publishers.
- Grant, G.T., Morris, E.R., Rees, D.A., Smith, P.J.C., and Thom, D. (1973) Biological interactions between polysaccharides and divalent cations: The egg-box model. FEBS Letters 32(1), 195-198.
- Griffiths, J.A. (1991) Wound care: Can the nursing process help. Professional Nurse, 208-212.
- Hayward, R., Saville, D., and Aksay, I. (2000) Electrophoretic assembly of colloidal crystals with optically tunable micropatterns. Nature 404(6773), 56-59.
- Horncastle, J. (1995) Wound dressings. Past, present, and future. Medical Device Technology 6(1), 30-34, 36.

- Huglin, M.B. and Zakaria, M.B. (1986) Swelling properties of copolymeric hydrogels prepared by gamma irradiation. Journal of Applied Polymer Science 31(2), 457-475.
- Ispasoiu, R.G., Balogh, L., Varnavski, O.P., Tomalia, D.A., and Goodson III, T. (2000) Large optical limiting from novel metal-dendrimer nanocomposite materials. Journal of the American Chemical Society 122(44), 11005-11006.
- Kanani, A.G. and-Bahrami, S.H. (2010) Review on electrospun nanofibers scaffold and biomedical applications. Trends in Biomaterials and Artificial Organs 24(2), 93-115.
- Kato, N., Sato, S., Yamanaka, A., Yamada, H., Fuwa, N., and Nomura, M. (1998) Silk protein, sericin, inhibits lipid peroxidation and tyrosinase activity. Bioscience, Biotechnology, and Biochemistry 62(1), 145-147.
- Kenawy, E.-R., Bowlin, G.L., Mansfield, K., Layman, J., Simpson, D.G., Sanders, E.H., and Wnek, G.E. (2002) Release of tetracycline hydrochloride from electrospun poly (ethylene-co-vinylacetate), poly (lactic acid), and a blend. Journal of Controlled Release 81(1), 57-64.
- Kiesow, A., Morris, J., Radehaus, C., and Heilmann, A. (2003) Switching behavior of plasma polymer films containing silver nanoparticles. Journal of Applied Physics 94(10), 6988-6990.
- Kim, D.S., Lee, T., and Geckeler, K.E. (2006) Hole-Doped Single-Walled Carbon Nanotubes: Ornamenting with Gold Nanoparticles in Water. Angewandte Chemie International Edition 45(1), 104-107.
- Kokabi, M., Sirousazar, M., and Hassan, Z.M. (2007) PVA-clay nanocomposite hydrogels for wound dressing. European Polymer Journal 43(3), 773-781.
- Lansdown, A. (2002) Silver I: its antibacterial properties and mechanism of action. Journal of Wound Care 11(4), 125-131.
- Lansdown, A. (2002) Silver. 2: Toxicity in mammals and how its products aid wound repair. Journal of Wound Care 11(5), 173-177.
- Lewis, L.N. (1993) Chemical catalysis by colloids and clusters. Chemical Reviews 93(8), 2693-2730.

- Lisiecki, I. and Pileni, M.P. (1993) Synthesis of copper metallic clusters using reverse micelles as microreactors. Journal of the American Chemical Society 115(10), 3887-3896.
- MacKay, D. and Miller, A.L. (2003). Nutritional support for wound healing. Alternative Medicine Review: A Journal of Clinical Therapeutic 8(4), 359-377.
- Maolin, Z., Hongfei, H., Yoshii, F., and Makuuchi, K. (2000) Effect of kappa-carrageenan on the properties of poly (N-vinyl pyrrolidone)/kappa-carrageenan blend hydrogel synthesized by γ -radiation technology. Radiation Physics and Chemistry 57(3), 459-464.
- Nagai, N., Murao, T., Ito, Y., Okamoto, N., and Sasaki, M. (2009) Enhancing effects of sericin on corneal wound healing in rat debrided corneal epithelium. Biological & Pharmaceutical Bulletin 32(5), 933-936.
- Nho, Y. and Park, K. (2002) Preparation and properties of PVA/PVP hydrogels containing chitosan by radiation. Journal of Applied Polymer Science 85(8), 1787-1794.
- Noh, H.K., Lee, S.W., Kim, J.-M., Oh, J.-E., Kim, K.-H., Chung, C.-P., Choi, S.-C., Park, W.H., and Min, B.-M. (2006) Electrospinning of chitin nanofibers: Degradation behavior and cellular response to normal human keratinocytes and fibroblasts. Biomaterials 27(21), 3934-3944.
- Peppas, N. (1986) Hydrogels in Medicine and Pharmacy 2, 1.
- Peppas, N.A. (1997) Hydrogels and drug delivery. Current Opinion in Colloid & Interface Science 2(5), 531-537.
- Peppas, N.A. and Langer, R. (1994) New challenges in biomaterials. Science 263(5154), 1715-1720.
- Peppas, N.A. and Merrill, E.W. (1976) Poly (vinyl alcohol) hydrogels: Reinforcement of radiation-crosslinked networks by crystallization. Journal of Polymer Science: Polymer Chemistry Edition 14(2), 441-457.
- PK, K. and Reddy, S. (2009) Indian Journal of Pharmaceutical Education & Research 43(4), 370-374.

- Poizot, P., Laruelle, S., Grugeon, S., Dupont, L., and Tarascon, J. (2000) Nano-sized transition-metal oxides as negative-electrode materials for lithium-ion batteries. Nature 407(6803), 496-499.
- Qin, Y. and Gilding, D. (1996) Alginate fibres and wound dressings. Medical Device Technology 7(9), 32-41.
- Rho, K.S., Jeong, L., Lee, G., Seo, B.-M., Park, Y.J., Hong, S.-D., Roh, S., Cho, J.J., Park, W.H., and Min, B.-M. (2006) Electrospinning of collagen nanofibers: effects on the behavior of normal human keratinocytes and early-stage wound healing. Biomaterials 27(8), 1452-1461.
- Risbud, M.V. and Bhat, S.V. (2001) Properties of polyvinyl pyrrolidone/ β -chitosan hydrogel membranes and their biocompatibility evaluation by haemorheological method. Journal of Materials Science: Materials in Medicine 12(1), 75-79.
- Rosiak, J., Ulański, P., Pajewski, L., Yoshii, F., and Makuuchi, K. (1995) Radiation formation of hydrogels for biomedical purposes. Some remarks and comments. Radiation Physics and Chemistry 46(2), 161-168.
- Sai K, P. and Babu, M. (2000) Collagen based dressings — a review. Burns 26(1), 54-62.
- Sikareepaisan, P., Suksamrarn, A., and Supaphol, P. (2008) Electrospun gelatin fiber mats containing a herbal—*Centella asiatica*—extract and release characteristic of asiaticoside. Nanotechnology 19(1), 1-10.
- Singh, B. and Pal, L. (2008) Development of sterculia gum based wound dressings for use in drug delivery. European Polymer Journal 44(10), 3222-3230.
- Skulason, S., Ingolfsson, E., and Kristmundsdottir, T. (2003) Development of a simple HPLC method for separation of doxycycline and its degradation products. Journal of Pharmaceutical and Biomedical Analysis 33(4), 667-672.
- Stojadinovic, A., Carlson, J.W., Schultz, G.S., Davis, T.A., and Elster, E.A. (2008) Topical advances in wound care. Gynecologic Oncology 111(2), S70-S80.
- Suwantong, O., Ruktanonchai, U., and Supaphol, P. (2008) Electrospun cellulose acetate fiber mats containing asiaticoside or *Centella asiatica* crude extract and the release characteristics of asiaticoside. Polymer 49(19), 4239-4247.

- Sweetman, S.C. (2011) Martindale: The Complete Drug Reference: London: Pharmaceutical Press.
- Taepaiboon, P., Rungsardthong, U., and Supaphol, P. (2006) Drug-loaded electrospun mats of poly (vinyl alcohol) fibres and their release characteristics of four model drugs. Nanotechnology 17(9), 2317.
- Takahashi, M., Tsujimoto, K., Yamada, H., Takagi, H., and Nakamori, S. (2003) The silk protein, sericin, protects against cell death caused by acute serum deprivation in insect cell culture. Biotechnology Letters 25(21), 1805-1809.
- Takeuchi, A., Ohtsuki, C., Miyazaki, T., Tanaka, H., Yamazaki, M., and Tanihara, M. (2003) Deposition of bone-like apatite on silk fiber in a solution that mimics extracellular fluid. Journal of Biomedical Materials Research Part A 65(2), 283-289.
- Terada, S., Nishimura, T., Sasaki, M., Yamada, H., and Miki, M. (2002) Sericin, a protein derived from silkworms, accelerates the proliferation of several mammalian cell lines including a hybridoma. Cytotechnology 40(1-3), 3-12.
- Theron, S., Zussman, E., and Yarin, A. (2004) Experimental investigation of the governing parameters in the electrospinning of polymer solutions. Polymer 45(6), 2017-2030.
- Thompson, C., Chase, G., Yarin, A., and Reneker, D. (2007) Effects of parameters on nanofiber diameter determined from electrospinning model. Polymer 48(23), 6913-6922.
- Tsubouchi, K., Igarashi, Y., Takasu, Y., and Yamada, H. (2005) Sericin enhances attachment of cultured human skin fibroblasts. Bioscience, Biotechnology, and Biochemistry 69(2), 403-405.
- Tungprapa, S., Jangchud, I., and Supaphol, P. (2007) Release characteristics of four model drugs from drug-loaded electrospun cellulose acetate fiber mats. Polymer 48(17), 5030-5041.
- Venugopal, J., Low, S., Choon, A.T., and Ramakrishna, S. (2008) Interaction of cells and nanofiber scaffolds in tissue engineering. Journal of Biomedical Materials Research Part B: Applied Biomaterials 84(1), 34-48.

- Walker, M., Cochrane, C.A., Bowler, P.G., Parsons, D., and Bradshaw, P. (2006) Silver deposition and tissue staining associated with wound dressings containing silver. Ostomy Wound Management 52(1), 42-50.
- Wang, W. and Asher, S.A. (2001) Photochemical incorporation of silver quantum dots in monodisperse silica colloids for photonic crystal applications. Journal of the American Chemical Society 123(50), 12528-12535.
- White, R. and Cutting, K.F. (2006) Modern exudate management: a review of wound treatments. World Wide Wounds, 1-9.
- Winter, G.D. (1962) Formation of the scab and the rate of epithelization of superficial wounds in the skin of the young domestic pig. Nature 193(4812), 293-294.
- Xiao, S., Shen, M., Ma, H., Guo, R., Zhu, M., Wang, S., and Shi, X. (2010) Fabrication of water-stable electrospun polyacrylic acid-based nanofibrous mats for removal of copper (II) ions in aqueous solution. Journal of Applied Polymer Science 116(4), 2409-2417.
- Yanagihara, N., Tanaka, Y., and Okamoto, H. (2001) Formation of silver nanoparticles in poly (methyl methacrylate) by UV irradiation. Chemistry Letters 30(8), 796-797.
- Yoshimoto, H., Shin, Y., Terai, H., and Vacanti, J. (2003) A biodegradable nanofiber scaffold by electrospinning and its potential for bone tissue engineering. Biomaterials 24(12), 2077-2082.
- Zhao, L., Xu, L., Mitomo, H., and Yoshii, F. (2006) Synthesis of pH-sensitive PVP/CM-chitosan hydrogels with improved surface property by irradiation. Carbohydrate Polymers 64(3), 473-480.
- Zhaorigetu, S., Yanaka, N., Sasaki, M., Watanabe, H., and Kato, N. (2003) Silk protein, sericin, suppresses DMBA-TPA-induced mouse skin tumorigenesis by reducing oxidative stress, inflammatory responses and endogenous tumor promoter TNF-alpha. Oncology Reports 10(3), 537-544.
- Zhou, Y., Yang, D., Chen, X., Xu, Q., Lu, F., and Nie, J. (2007) Electrospun water-soluble carboxyethyl chitosan/poly (vinyl alcohol) nanofibrous membrane as potential wound dressing for skin regeneration. Biomacromolecules 9(1), 349-354.

- Zhu, L.J., Arai, M., and Hirabayashi, K. (1995) Gelation of silk sericin and physical properties of the gel. The Journal of Sericultural Science of Japan 64(5), 415-419.
- Zong, X., Kim, K., Fang, D., Ran, S., Hsiao, B.S., and Chu, B. (2002) Structure and process relationship of electrospun bioabsorbable nanofiber membranes. Polymer 43(16), 4403-4412.

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2. Khampieng, T.; Wnek, G.E.; and Supaphol, P. (2014), Electrospun DOXY-h loaded-Poly(acrylic acid) nanofiber mats: In vitro Drug Release and Antibacterial properties Investigation, Journal of Biomaterials Science, Polymer Edition, accepted.

Presentations:

1. Khampieng, T.; Brikshavana, P.; and Supaphol, P. (2011, November 13-17) Silver Nanoparticles-embedded Polyvinyl Pyrrolidone Hydrogel Dressing: Gamma-Ray Synthesis and Biological Evaluation. Paper presented at The 12th Polymer Pacific Conference (PPC 12), Jeju Island, Korea.
2. Khampieng, T. (2005) The stability of Bilirubin – oxidase (BOD) enzyme from *Myrothecium verrucaria* BCC112. Paper presented at The Academic Day, Chiang Mai University, Chiang Mai. Thailand.