

- Ahmad, R., Nunuk, P., Dedy, K.Y., and Anne, H.D., 2016, *Chitosan-Gelatin Membrane Construct with Different Cinnamaldehyde Concentration as Drug Delivery System in Oral Cavity*, AIP Conference Proceeding, American Institute of Physics.
- Akane, T., Toshiaki, N., and Hiroshi, M., 2005, *Acceleration of Wound Healing by Gelatin Film Dressings with Epidermal Growth Factor*, J. Vet. Med. Sci, 67 (9), pp. 909-913.
- Alireza, G., Kian, N., Mahvash, O., Khosrow, B., and Morteza, R.T., 2007, *Preparation and Characterization of Free Mixed-Film of Pectin/Chitosan/Eudragit RS Intended for Sigmoidal Drug Delivery*, European Journal of Pharmaceutics and Biopharmaceutics 67, 175–186.
- Ana, C.S., Mariana, C., Pravin, P., Carlos, F.R., Antonio, J.R., Yuri, L. and Francisco, V., 2018, *Layer by Layer Coated Drug Core Nanoparticles as Versatile Delivery Platforms, Design and Development of New Nanocarriers*, pp. 595-635.
- Andreas, B.S., and Sarah, D., 2012, *Chitosan-Based Drug Delivery System*. European Journal of Pharmaceutics and Biopharmaceutics.
- Anurag, V., and Ankita, V., 2013, *Polyelectrolyte Complex- An Overview*, Int J Pharm Sci Res., 4(5), pp. 1684-1691.
- Archana, D., Dutta, J., and Dutta, P.K., 2010, *Chitosan-Pectin-Titanium Dioxide Nano-Composite Film: An Investigation for Wound Healing Applications*, Asian Chitin J, vol. 6, pp. 45- 46.
- Archana, D., Upadhyay, L., Tewari, R.P., Dutta, J., Huang, Y.B., and Dutta, P.K., 2013, *Chitosan-Pectin-Alginate as a Novel Scaffold for Tissue Engineering Application*, Indian Journal of Biotechnology, vol. 12, pp. 475-482.
- Ariga, K., McShane, M., Lvov, Y.M., Ji, Q., Hill, J.P., 2011, *Layer-by-Layer Assembly for Drug Delivery and Related Applications*, Expert Op. in Drug Deliv., 8(5), 633-44.
- Asli, S.C., Meryem, S.E., Sevgi, G., and Yıldız, Ö., et al., 2013, *Optimization and Characterization of Chitosan Films for Transdermal Delivery of Ondansetron*, Molecules, 18, pp. 5455-5471.
- Bonnaillie, L. M., Zhang, H., Akkurt, S., Yam, K. L., and Tomasula, P. M., 2014, *Casein Films: The Effect of Formulation, Environmental Conditions and the Addition of Citric Pectin on the Structure and Mechanical Properties*, Polymers, 6, pp. 2018–2036.
- Brake, N.C., and Fennema, O.R., 1993, *Edible Coating to Inhibit Lipid Migration in a Confectionery Product*, Journal Food Sciences, vol. 58, pp. 1422-1428.
- Carbinatto, F. M., de Castro, A. D., Evangelista, R. C., and Cury, B. S. F., 2014, *Insights into the Swelling Process and Drug Release Mechanisms from Cross-linked Pectin/High*

Chemical Book, 2017, *CAS Data Base List: Tween 80*, Retrieved: April, 2018. Website: https://www.chemicalbook.com/ChemicalProductProperty_EN_CB7741359.htm.

Chien-Yang, H., Sung-Pei, T., Da-Ming, W., and Yaw-Nan, C., 2005, *Preparation of Y-PGA/Chitosan Composite Tissue Engineering Matrices*, Biomaterials, vol. 26, pp. 5617-5623.

Daheui, C. and Jinkee, H., 2014, *Layer-by-Layer Assembly of Multilayer Films for Controlled Drug Release*, Arch. Pharm. Res., vol. 37, pp. 79–87.

Dania, A., Maliheh, G., Wojciech, C., and Ramin, R., 2014, *Curcumin as a Wound Healing Agent*, Life Sciences, vol. 116, pp. 1-7.

David, V., Romy, S., Annett, G., Maximilian, S., Katrin, S.L., and Martin, M., 2016, *Polyelectrolyte Complex Based Interfacial Drug Delivery System with Controlled Loading and Improved Release Performance for Bone Therapeutics*, Nanomaterials (Basel), 6(3), 53.

Dina, R., Kristine, V.B., Albert, H., and Hans-Georg, S., 2017, *Insights into the Mode of Action of Chitosan as an Antibacterial Compound*, American Society for Microbiology.

Dutta, J., and Dutta, P.K., 2005, *Chitin and Chitosan: Opportunities and Challenges*, in: P.K. Dutta (Eds.), S S M International Publication, Midnapore, India, pp. 1-34.

Eduardo, V., David, M.D., Paula, T.H., and David, M.L., 2002, *Construction of Hydrolytically-Degradable Thin Films via Layer-by-Layer Deposition of Degradable Polyelectrolytes*, JACS Communication, J. AM. CHEM. SOC., 124, pp. 13992-13993.

Elgadir, M.A., Uddin, M.S., Ferdosh, S., Adama, A., Chowdhury, A.J.K., Sarker, M.Z.I., 2015, *Impact of Chitosan Composites and Chitosan Nanoparticle Composites on Various Drug Delivery Systems: A Review*, J. Foods and Drug Analysis, vol.23, issue. 4, pp. 619-629.

Emilia, S., and Katarzyna, W., 2015, *Stability of Chitosan—A Challenge for Pharmaceutical and Biomedical Applications*, Mar. Drugs, 13(4), pp. 1819-1846

F. Biguccia, B. Luppia, T. Cerchiarac, M. Sorrenti, G. Bettinetti, L. Rodriguez, and V. Zecchia, 2008, *Chitosan/Pectin Polyelectrolyte Complexes: Selection of Suitable Preparative Conditions for Colon-Specific Delivery of Vancomycin*, European journal of Pharmaceutical Sciences, vol. 35, pp. 435-441.

Fang, Y. P., Al-Assaf, S., Phillips, G. O., Nishinari, K., Funami, T., Williams, P. A., 2007, *Multiple Steps and Critical Behaviors of the Binding of Calcium to Alginate*, Journal of Physical Chemistry B, 111(10), pp. 2456–2462.

- Fang, Y.P., Al-Assaf, S., Phillips, G.O., Nishinari, K., Funami, T., and Williams, P.A., 2008, *Binding Behavior of Calcium to Polyuronates: Comparison of Pectin with Alginate*, Carbohydrate Polymers, 72(2), pp. 334–341.
- Florence, C., Christine J., 2013, *Chitosan-Based Biomaterials for Tissue Engineering*, European Polymer Journal, vol. 49, pp. 780-792.
- Haitang, X., Lie, M., Haifei, S., Changyou, G., and Chunmao, H., 2007, *Chitosan–Hyaluronic Acid Hybrid Film as a Novel Wound Dressing: in Vitro and in Vivo Studies*, POLYMERS FOR ADVANCED TECHNOLOGIES, Polym. Adv. Technol, vol. 18, pp. 869–875.
- Hansjörg, R., and June, L.B., 1972, *Potentiation of Drug Effect by Tween 80 in Chinese Hamster Cells Resistant to Actinomycin D and Daunomycin*, Cancer Research, vol. 32, pp. 1195-1200.
- Hua, A., Steven, A.J., and Yuri, M.L., 2003, *Biomedical Applications of Electrostatic Layer-by-Layer Nano-Assembly of Polymers, Enzymes, and Nanoparticles*, Cell Biochemistry and Biophysics, vol. 39, pp. 23-43.
- Jia, Y., Hu, Y., Zhu, Y., Che, L., and Shen, Q., 2011, *Oligoamines Conjugated Chitosan Derivatives: Synthesis, Characterization, in Vitro and in Vivo Biocompatibility Evaluations*, Carbohydrate Polymer, vol. 83, pp. 1153-1161.
- Jinhyun, H.L., Yoon, Y., 2015, *Controlled Drug Release from Pharmaceutical Nanocarriers*, US National Library of Medicine; National Institutes of Health. 125, pp. 75–84.
- Juergen, S., and Florence.S, 2012, *Modeling of Diffusion Controlled Drug Delivery*, Journal of Controlled Release, vol. 161, pp. 351–362.
- Junhua, W., Li, W., Haojie, Y., Zain-ul, A., Yongsheng, C., Qing, C., Weidong, Z., Hongtao, Z., and Xiao, C., 2016, *Recent Progress of Synthesis, Property and Application of Modified Chitosan*, International Journal of Biological Macromolecules, BIOMAC 5970.
- Katsuhiko, A., Yuri M.L., Kohsaku, K., Qingmin, J., and Jonathan, P.H., 2011, *Layer-by-Layer Self-Assembled Shells for Drug Delivery*, Advanced Drug Delivery Reviews, vol. 63, pp. 762-771.
- Kistriyani, L., 2014, *Speed Release of Salicylic Acid in Pectin Based Edible Film as Media Controlled Drug Delivery System*, Universitas Gadjah Mada, Yogyakarta.
- Krochta, J.M., Baldwin, E.A., and Nisperos-Carriedo, M., 1994, *Edible Coatings and Films to Improve Food Quality*, Technomic Publishing Company, Inc, Lancaster, PY, USA.
- Kumar, M.N., Muzzarelli, R.A., Muzzarelli, C., Sashiwa, H., and Domb, A.J., 2004, *Chitosan Chemistry and Pharmaceutical Perspectives*, Chem. Rev. 104, 6017-6084.
- Liu, L., Fishman, M. L., and Hicks, K. B., 2006. *Pectin in Controlled Drug Delivery – A Review*, Springer.

- Loredana, M., Prospero D.P., Carlo, E., Angela, S., Paolo, M., and Raffaella P., 2003, *Preparation and Mechanical Properties of Edible Pectin-Soy Flour Films obtained in the Absence or Presence of Transglutaminase*, Journal of Biotechnology, vol. 102, pp. 191-198.
- Manisha, B. and Devendra, V., 2017, *Polyelectrolyte Complexes (PECs) for Biomedical Applications, Advances in Biomaterials for Biomedical Applications*, Advanced Structured Materials Springer Nature Singapore, pp.1-50.
- Mariya, M., Alistair, J. M.D., and Stephen, G.R., 2004, *Pectin-Chitosan Interactions and Gel Formation*, Carbohydrate Research, 339, pp. 1933-1939
- Meera, G., and T. Emilia, 2006, *Poly-Ionic Hydrocolloids for the Intestinal Delivery of Protein Drugs: Alginate and Chitosan*, Journal of Controlled Release, vol. 114, pp. 1–14.
- Muzzarelli, R.A.A., and Muzzarelli, C., 2005, *Chitosan Chemistry: Relevance to the Biomedical Sciences, Polysaccharides 1: Structure, Characterization and Use*, pp. 151-209.
- Narayan, B., Jonathan, G., and Miqin, Z., 2010, *Chitosan-Based Hydrogels for Controlled, Localized Drug Delivery*, Advanced Drug Delivery. Rev. 62, 83-99.
- National Institutes of Health, 2016, *Drug Delivery Systems: Getting Drugs to Their Targets in a Controlled Manner*, National Institute of Biomedical Imaging and Bio-engineering.
- Navneet, S., Parshotam, M., and Senshang, L., 2015, *Effect of Process and Formulation Variables on the Preparation of Parenteral paclitaxel-loaded biodegradable polymeric nanoparticles: A co-surfactant study*, Asian Journal of Pharmaceutical Science, St. John's University, Queens, NY, USA.
- Nevin, Y., and Vahdettin, S., 2000, *Studies of the Surface Area and Porosity of Activated Carbons Prepared from Rice Husks*, Carbon, 38, pp. 1943–1945.
- Nina, H., and Andrew, R.B., 2011, *BET Surface Area Analysis of Nanoparticles*, OpenStax-CNX, pp. 1–11.
- Nishijima, T., Iwai, K., Saito, Y., Takida, Y., and Matsue, H., 2009, *Chronic Ingestion of Apple Pectin can Enhance the Absorption of Quercetin*, Journal of Agricultural and Food Chemistry, vol. 57, pp. 2583-2587.
- Oleh, M.T., and Christopher, J.B., 2004, *Swelling Dynamics of Multilayer Films of Weak Polyelectrolytes*, J. Chem. Mater., vol. 16, pp. 2734-2739.
- P. Bernabé, C. Peniche, and W. Argüelles-Monal, 2005, *Swelling Behavior of Chitosan/Pectin Polyelectrolyte Complex Membranes: Effect of Thermal Cross-Linking*, Polymer Bulletin, 55, pp. 367-375.
- Park, Y.J., Lee, Y.M., Lee, J.Y., Seol, Y.J., Chung, C.P., and Lee, S.J., 2000, *Controlled Release of Platelet-Derived Growth factor-BB from Chondroitin Sulfate-Chitosan*

- Po-Hui, C., Ting-Yun, K., Jen-Yuan, K., Yen-Po, T., Da-Ming, W., Juin-Yih, L., and Hsyue-Jen, H., 2010, *Novel Chitosan–Pectin Composite Membranes with Enhanced Strength, Hydrophilicity and Controllable Disintegration*, Carbohydrate Polymers. 82, pp. 1236–1242.
- Praveen, K.M., Suman, L., Jagadeesh, B., and Venkata, V.K.V., 2015, *Effect of Pirfenidone Delivered Using Layer-by-Layer Thin Film on Excisional Wound Healing*, Accepted Manuscript.
- Rakesh, K.M., Mahesh, D., and Ajit, K.B., 2008, *Synthesis and Characterization of Pectin/PVP Hydrogel Membranes for Drug Delivery System*, PharmSciTech, vol. 9, no. 2, pp. 395-402.
- Randy, C.F.C., Tzi, B.N., Jack, H.W., and Wai, Y.C., 2015, *Chitosan: An Update on Potential Biomedical and Pharmaceutical Applications*, Mar. Drugs, 13, pp. 5156-5186.
- Rashidova, S.S., Milusheva, R.Y., Semenova, L.N., Mukhamedjanova, M.Y., Voropaeva, N.L., Vasilyeva, S., Faizieva, R., Ruban, I.N., 2003, *Characteristics of Interactions in the Pectin-Chitosan System*, Chromatographia, 59, no. 11/12
- Ravindra, R., Krovvidi, R.K., and Khan, A.A, 1998, *Solubility Parameter of Chitin and Chitosan*, Carbohydrate Polymers, vol. 36, pp. 121-127.
- Rejane C.G, Douglas, de B., and Odilio B.G.A., 2009, *A Review of the Antimicrobial Activity of Chitosan*. Polímeros, vol.19 no.3, São Carlos.
- Ridley, B.L., O'Neill, M.A., and Mohnen, D., 2001, *Phytochemistry*, vol. 57, pp. 929-967.
- Roghayeh, A.K., Mahiran, B., Mohd, B.A.R., and Abu, B.S., 2012, *Structural Properties of Nonionic Tween80 Micelle in Water Elucidated by Molecular Dynamics Simulation*, ICCCP, pp. 287 – 297.
- Rushita, S., Nabanita, S., and Petr, S., 2015, *Influence of Temperature, pH and Simulated Biological Solutions on Swelling and Structural Properties of Biomineralized (CaCO₃) PVP–CMC Hydrogel*, Prog Biomater, vol. 4, pp. 123-136.
- Science Struck, *Properties of Calcium Chloride*, 2018. Retrieved: April, 2018. Website: <https://sciencestruck.com/properties-of-calcium-chloride>.
- Sharma, B. R., Naresh L., Dhuldhoya N. C., Merchant S.U., and Merchant U. C., 2006, *An Overview of Pectin*, Times Food Processing Journal, pp. 44-51.
- Sharma, S., Dua, A., and Malik, A., 2017, *Third Generation Materials for Wound Dressings*, International Journal of Pharmaceutical Sciences and Research, ISSN (Print): 2320-5148.

- Shyam, S. B., Mehak, G., Farrukh, A., Manicka, V. V., and Ramesh, C. G., 2011, *Advanced Drug-Delivery Systems of Curcumin for Cancer Chemoprevention*, US National Library of Medicine, National Institutes of Health, US.
- Singh, J., and Dutta, P.K., 2009, *Preparation, Circular Dichroism Induced Helical Conformation and Optical Property of Chitosan Acid Salt Complexes for Biomedical Application*, Internal Journal Bio. Macro-mol. 45, pp. 384-392.
- Sinha, V., and Kumria, R., 2001, *International Journal Pharmaceutical*, vol. 224, pp. 19-38.
- T.T. Chau, W.J. Bruckard, P.T.L. Koh, and A.V. Nguyen, 2009, *A Review of Factors that Affect Contact Angle and Implications for Flotation Practice*, Advances in Colloid and Interface Science, vol, 150, pp.106–115.
- Tao, J., Roshan, J., and Sangamesh G.K., 2014, *Chitosan as a Biomaterial: Structure, Properties, and Applications in Tissue Engineering and Drug Delivery. Chapter 5: Chitosan as a Biomaterial: Natural and Synthetic Biomedical Polymers*, pp. 91-107.
- Umesh, K.P., Ashok, K.N., Birendra, K.B., and P. L. Nayak, 2011, *Synthesis and Characterization of Chitosan-Polyvinyl Alcohol Blended with Cloisite 30B for Controlled Release of the Anticancer Drug Curcumin*, Journal of Biomaterials and Nanobiotechnology, vol. 2, pp. 414-425.
- Wang, L., Khor, E., Wee, A., Lim, L., 2002, *Chitosan-alginate PEC membrane as a wound dressing: Assessment of incisional wound healing*, J Biomed Mater Res., 63(5), 610-8.
- Wan-Wan, Y., and Erik, P., 2012, *Reservoir-Based Polymer Drug Delivery Systems*, Journal of Laboratory Automation, 17(1), pp. 50-58
- Wu, L., Wang, H., Zhu, X., Hou, Y., Liu, W., Yang, G., Jiang, A., 2015, *Pectin-Chitosan Complex: Preparation and Application in Colon-Specific Capsule*, Int J Agric & Biol Eng, vol. 8, no. 4.
- Yangchao, L., and Qin, W., 2013, *Recent Development of Chitosan-Based Polyelectrolyte Complexes with Natural Polysaccharides for Drug Delivery*, International Journal of Biological Macromolecules, pp. 1-15.
- Yih-Horng, T., Jason, A.D., Kohki, F., N. Vijaya, G., Alexei, V.D., and Keith, J.S., 2012, *Surface Area and Pore Size Characteristics of Nano-porous Gold Subjected to Thermal, Mechanical, or Surface Modification Studied Using Gas Adsorption Isotherms, Cyclic Voltammetry, Thermogravimetric Analysis, and Scanning Electron Microscopy*, Journal Mater Chim, 22(14), pp. 6733-6745.
- Yuehua, Y., and T. Randall, L., 2013, *Contact Angle and Wetting Properties, Surface Science Techniques*, Springer Series in Surface Sciences, Springer-Verlag Berlin Heidelberg, pp.3-36.