

## References

1. Kashima K. and Imai M., *Impact factors to regulate mass transfer characteristics of stable alginate membrane performed superior sensitivity on various organic chemicals*. Procedia Engineering, 2012. **42**: p. 1060-1076.
2. Gacesa, P., *Alginates*. Carbohydrate Polymers, 1988. **8**: p. 161-182.
3. Grassi M., Sandolo C., Perin D., Coviello T., Lapasin R., and Grassi G., *Structural characterization of calcium alginate matrices by means of mechanical and release tests*. Molecules, 2009. **14**: p. 3003-3017.
4. Pawar S. N. and Edgar K. J., *Alginate derivatization: A review of chemistry, properties and applications*. Biomaterials, 2012. **33**: p. 3279-3305.
5. Haug A. and Larsen B., *The solubility of alginate at low pH*. Acta Chemica Scandinavica, 1963. **17**: p. 1653-1662.
6. Haug A. and Smidsrod O., *The effect of divalent metals on the properties of alginate solutions*. Acta Chemica Scandinavica, 1965. **19**: : p. 341-351.
7. de Kerchove, A. J. and Elimelech M., *Structural growth and viscoelastic properties of adsorbed alginate layers in monovalent and divalent salts*. Macromolecules, 2006. **39**: p. 6558-6564.
8. Haug A., Myklestad S., Larsen B., and Smidsrød O., *Correlation between chemical structure and physical properties of alginates*. Acta Chemica Scandinavica, 1967. **21**: p. 768-778.
9. Draget K. I., Skjak-Bræk G., and Smidsrod O., *Alginate based new materials*. International Journal of Biological Macromolecules, 1997. **21**: p. 47-55.
10. Haug, A., *Fractionation of alginic acid*. Acta Chemica Scandinavica, 1959. **13**: p. 601-603.
11. Zaafarany I. A., *Non-Isothermal Decomposition of Al, Cr and Fe Cross-Linked Trivalent Metal-Alginate Complexes*. Journal of King Abdulaziz Science, 2010. **22**: p. 193-202.
12. Hassan, R., *Alginate polyelectrolyte ionotropic gels*. Journal of Materials Science, 1991. **26**: p. 5806-5810.
13. Hassan R., Awad A., and Hassan A., *Seperation of metal alginate ionotropic gels to polymembranes with special evidence on the position of chelation in copper alginate complex*. Journal of Polymer Science Part A: Polymer Chemistry, 1991. **29**: p. 1645-1648.

14. Haug, A., *The affinity of some divalent metals to different types of alginates*. Acta Chemica Scandinavica, 1961. **15**: p. 1794-1795.
15. Velings N. M. and Mestdagh M. M., *Physico-chemical properties of alginate gel beads*. Polymer Gels and Networks, 1995. **3**: p. 311-330.
16. Grant G. T., Morris E. R., Rees D. A., Smith P. J., and Thom D., *Biological interactions between polysaccharides and divalent cations: the egg-box model*. FEBS letters, 1973. **32**: p. 195-198.
17. Braccini I. and Pérez S., *Molecular basis of Ca<sup>2+</sup>-induced gelation in alginates and pectins: The egg-box model revisited*. Biomacromolecules, 2001. **2**: p. 1089-1096.
18. Sikorski P., Mo F., Skjåk-Bræk G., and Stokke B. T., *Evidence for egg-box-compatible interactions in calcium-alginate gels from fiber X-ray diffraction*. Biomacromolecules, 2007. **8**: p. 2098-2103.
19. Hassan, R. M., *Alginate polyelectrolyte ionotropic gels*. Journal of Materials Science, 1993. **28**: p. 384-388.
20. Hassan R., Wahdan M., and Hassan A., *Kinetics and mechanism of sol-gel transformation on polyelectrolytes of nickel alginate ionotropic membranes*. European Polymer Journal, 1988. **24**: p. 281-283.
21. Hassan R., Summan A., Hassan M., and El-Shatoury S., *Kinetics and mechanism of sol-gel transformation on polyelectrolytes of some transition metal ions, especially cobalt alginate ionotropic membranes*. European Polymer Journal, 1989. **25**: p. 1209-1212.
22. Skjåk-Bræk G., Grasdalen H., and Smidsrød O., *Inhomogeneous polysaccharide ionic gels*. Carbohydrate Polymers, 1989. **10**: p. 31-54.
23. Ingar Draget K., Østgaard K., and Smidsrød O., *Homogeneous alginate gels: a technical approach*. Carbohydrate Polymers, 1990. **14**: p. 159-178.
24. Chan L. W., Lee H. Y., and Heng P. W., *Mechanisms of external and internal gelation and their impact on the functions of alginate as a coat and delivery system*. Carbohydrate Polymers, 2006. **63**: p. 176-187.
25. Hassan R., El-Shatoury S., Mousa M., and Hassan A., *Kinetics and mechanism of sol-gel transformation for polyelectrolytes of capillary copper alginate ionotropic membranes*. European Polymer Journal, 1988. **24**: p. 1173-1175.

26. Khairou K., Al-Gethami W., and Hassan R., *Kinetics and mechanism of sol-gel transformation between sodium alginate polyelectrolyte and some heavy divalent metal ions with formation of capillary structure polymembranes ionotropic gels*. Journal of Membrane Science, 2002. **209**: p. 445-456.
27. Gotoh T., Matsushima K., and Kikuchi K. I., *Preparation of alginate-chitosan hybrid gel beads and adsorption of divalent metal ions*. Chemosphere, 2004. **55**: p. 135-140.
28. Fu F. and Wang Q., *Removal of heavy metal ions from wastewaters: A review*. Journal of Environmental Management, 2011. **92**: p. 407-418.
29. Matlock M. M., Henke K.R., and Atwood D.A., *Effectiveness of commercial reagents for heavy metal removal from water with new insights for future chelate designs*. Journal of Hazardous Materials, 2002. **92**: p. 129-142.
30. Gode F. and Pehlivan E., *Removal of chromium (III) from aqueous solutions using Lewatit S 100: the effect of pH, time, metal concentration and temperature*. Journal of Hazardous Materials, 2006. **136**: p. 330-337.
31. Landaburu-Aguirre J., García V., Pongrácz E., and Keiski R.L., *The removal of zinc from synthetic wastewaters by micellar-enhanced ultrafiltration: statistical design of experiments*. Desalination, 2009. **240**: p. 262-269.
32. Chang Q. and Wang G., *Study on the macromolecular coagulant PEX which traps heavy metals*. Chemical Engineering Science, 2007. **62**: p. 4636-4643.
33. Yuan X., Meng Y., Zeng G., Fang Y., and Shi J., *Evaluation of tea-derived biosurfactant on removing heavy metal ions from dilute wastewater by ion flotation*. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2008. **317**: p. 256-261.
34. Chen, G., *Electrochemical technologies in wastewater treatment*. Separation and Purification Technology, 2004. **38**: p. 11-41.
35. Wu D., Zhao J., Zhang L., Wu Q., and Yang Y., *Lanthanum adsorption using iron oxide loaded calcium alginate beads*. Hydrometallurgy, 2010. **101**: p. 76-83.
36. Jiang M. Q., Jin X. Y., Lu X. Q., and Chen Z. L., *Adsorption of Pb (II), Cd (II), Ni (II) and Cu (II) onto natural kaolinite clay*. Desalination, 2010. **252**: p. 33-39.
37. Kang K. C., Kim S. S., Choi J. W., and Kwon S. H., *Sorption of Cu<sup>2+</sup> and Cd<sup>2+</sup> onto acid-and base-pretreated granular activated carbon and activated*

- carbon fiber samples*. Journal of Industrial and Engineering Chemistry, 2008. **14**: p. 131-135.
38. Draget K., Skjåk Bræk G., and Smidsrød O., *Alginate acid gels: the effect of alginate chemical composition and molecular weight*. Carbohydrate Polymers, 1994. **25**: p. 31-38.
39. Papageorgiou S. K., Katsaros F. K., Kouvelos E. P., Nolan J. W., Le Deit H., and Kanellopoulos N. K., *Heavy metal sorption by calcium alginate beads from Laminaria digitata*. Journal of Hazardous Materials, 2006. **137**: p. 1765-1772.
40. Lim S. F., Zheng Y. M., Zou S. W., and Chen J. P., *Removal of copper by calcium alginate encapsulated magnetic sorbent*. Chemical Engineering Journal, 2009. **152**: p. 509-513.
41. Li Y., Xia B., Zhao Q., Liu F., Zhang P., Du Q., Wang D., Li D., Wang Z., and Xia Y., *Removal of copper ions from aqueous solution by calcium alginate immobilized kaolin*. Journal of Environmental Sciences, 2011. **23**: p. 404-411.
42. Li Y., Liu F., Xia B., Du Q., Zhang P., Wang D., Wang Z., and Xia Y., *Removal of copper from aqueous solution by carbon nanotube/calcium alginate composites*. Journal of Hazardous Materials, 2010. **177**: p. 876-880.
43. Yang S. T., Chang Y., Wang H., Liu G., Chen S., Wang Y., Liu Y., and Cao A., *Folding/aggregation of graphene oxide and its application in Cu<sup>2+</sup> removal*. Journal of Colloid and Interface Science, 2010. **351**: p. 122-127.
44. Geim, A.K. and K.S. Novoselov, *The rise of graphene*. Nature materials, 2007. **6**: p. 183-191.
45. Soldano C., Mahmood A., and Dujardin E., *Production, properties and potential of graphene*. Carbon, 2010. **48**(8): p. 2127-2150.
46. Wu Z. S., Ren W., Gao L., Liu B., Jiang C., and Cheng H. M., *Synthesis of high-quality graphene with a pre-determined number of layers*. Carbon, 2009. **47**: p. 493-499.
47. Yang X., Li L., Shang S., and Tao X. M., *Synthesis and characterization of layer-aligned poly (vinyl alcohol)/graphene nanocomposites*. Polymer, 2010. **51**: p. 3431-3435.

48. Stankovich S., Dikin D.A., Dommett G.H., Kohlhaas K.M., Zimney E.J., Stach E.A., Piner R.D., Nguyen S.T., and Ruoff R.S., *Graphene-based composite materials*. Nature, 2006. **442**: p. 282-286.
49. Buchsteiner A., Lerf A., and Pieper J., *Water dynamics in graphite oxide investigated with neutron scattering*. The Journal of Physical Chemistry B, 2006. **110**: p. 22328-22338.
50. Mkhoyan K. A., Contryman A. W., Silcox J., Stewart D. A., EdaG., Mattevi C., Miller S., and Chhowalla M., *Atomic and electronic structure of graphene-oxide*. Nano Letters, 2009. **9**: p. 1058-1063.
51. Gómez-Navarro C., Meyer J.C., Sundaram R.S., ChuvilinA., Kurasch S., Burghard M., Kern K., and Kaiser U., *Atomic structure of reduced graphene oxide*. Nano letters, 2010. **10**: p. 1144-1148.
52. Dideykin A., Aleksenskiy A., Kirilenko D., Brunkov P., Goncharov P., Baidakova M., Sakseev D., and Ya Vul A., *Monolayer graphene from graphite oxide*. Diamond and Related Materials, 2011. **20**: p. 105-108.
53. Paredes J., Villar-Rodil S., Martinez-Alonso A., and Tascon J., *Graphene oxide dispersions in organic solvents*. Langmuir, 2008. **24**: p. 10560-10564.
54. Chowdhury F. A., Morisaki T., Otsuki J., and Alam M. S., *Optoelectronic properties of graphene oxide thin film processed by cost-effective route*. Applied Surface Science, 2012. **259**: p. 460-464.
55. Liu L., Li C., Bao C., Jia Q., Xiao P., Liu X., and Zhang Q., *Preparation and characterization of chitosan/graphene oxide composites for the adsorption of Au (III) and Pd (II)*. Talanta, 2012. **93**: p. 350-357.
56. Wang H., Yuan X., Wu Y., Huang H., Zeng G., Liu Y., Wang X., Lin N., and Qi Y., *Adsorption characteristics and behaviors of graphene oxide for Zn (II) removal from aqueous solution*. Applied Surface Science, 2013. **279**: p. 432-440.
57. Yang S. T., Chen S., Chang Y., Cao A., Liu Y., and Wang H., *Removal of methylene blue from aqueous solution by graphene oxide*. Journal of Colloid and Interface Science, 2011. **359**: p. 24-29.
58. Gao Y., Li Y., Zhang L., Huang H., Hu J., Shah S. M., and Su X., *Adsorption and removal of tetracycline antibiotics from aqueous solution by graphene oxide*. Journal of Colloid and Interface Science, 2012. **368**: p. 540-546.

59. Chen H., Gao B., and Li H., *Removal of sulfamethoxazole and ciprofloxacin from aqueous solutions by graphene oxide*. Journal of Hazardous Materials, 2015. **282**: p. 201-207.
60. Lin Y., Xu S., and Li J., *Fast and highly efficient tetracyclines removal from environmental waters by graphene oxide functionalized magnetic particles*. Chemical Engineering Journal, 2013. **225**: p. 679-685.
61. Fan L., Luo C., Sun M., Li X., and Qiu H., *Highly selective adsorption of lead ions by water-dispersible magnetic chitosan/graphene oxide composites*. Colloids and Surfaces B: Biointerfaces, 2013. **103**: p. 523-529.
62. Worch E., *Adsorption Technology in Water Treatment : Fundamentals, Processes, and Modeling*, 2012, De Gruyter: Berlin.
63. Gimbert F., Morin-Crini N., Renault F., Badot P. M., and Crini G., *Adsorption isotherm models for dye removal by cationized starch-based material in a single component system: error analysis*. Journal of Hazardous Materials, 2008. **157**: p. 34-46.
64. Kale S.P. and Garg S., *Prediction of the mutual diffusion coefficient for controlled drug delivery devices*. Computers & Chemical Engineering, 2012. **39**: p. 186-198.
65. Du J. Z., Mao C. Q., Yuan Y. Y., Yang X. Z., and Wang J., *Tumor extracellular acidity-activated nanoparticles as drug delivery systems for enhanced cancer therapy*. Biotechnology advances, 2014. **32**: p. 789-803.
66. Asmatulu R., Fakhari A., Wamocha H., Chu H., Chen Y., Eltabey M., Hamdeh H., and Ho J., *Drug-carrying magnetic nanocomposite particles for potential drug delivery systems*. Journal of Nanotechnology, 2009. **2009**: p. 1-6.
67. Raiche A. and Puleo D., *Modulated release of bioactive protein from multilayered blended PLGA coatings*. International Journal of Pharmaceutics, 2006. **311**(1): p. 40-49.
68. Bhowmik D., Gopinath H., Kumar B., Duraiavel S., and Sampath Kumar K. P., *Controlled release drug delivery systems*. . The Pharma Innovation, 2012. **1**: p. 24-32.
69. Immich A. P. S., Arias M. L., Carreras N., Boemo R. L., and Tornero J. A., *Drug delivery systems using sandwich configurations of electrospun poly*

- (lactic acid) nanofiber membranes and ibuprofen. *Materials Science and Engineering: C*, 2013. **33**: p. 4002-4008.
70. Langer R., *Implantable controlled release systems*. *Pharmacology & Therapeutics*, 1982. **21**: p. 35-51.
  71. Kim S., Kim J. H., Jeon O., Kwon I. C., and Park K., *Engineered polymers for advanced drug delivery*. *European Journal of Pharmaceutics and Biopharmaceutics*, 2009. **71**: p. 420-430.
  72. Wilson B., Samanta M.K., Santhi K., Kumar K., Ramasamy M., and Suresh B., *Chitosan nanoparticles as a new delivery system for the anti-Alzheimer drug tacrine*. *Nanomedicine: Nanotechnology, Biology and Medicine*, 2010. **6**: p. 144-152.
  73. Shi J., Zhang Z., Qi W., and Cao S., *Hydrophobically modified biomaterialized polysaccharide alginate membrane for sustained smart drug delivery*. *International Journal of Biological Macromolecules*, 2012. **50**: p. 747-753.
  74. Liu L., Wang B., Bai T. C., and Dong B., *Thermal behavior and properties of chitosan fibers enhanced polysaccharide hydrogels*. *Thermochimica Acta*, 2014. **583**: p. 8-14.
  75. Chen J., Jo S., and Park K., *Polysaccharide hydrogels for protein drug delivery*. *Carbohydrate Polymers*, 1995. **28**: p. 69-76.
  76. Kuang J., Yuk K. Y., and Huh K. M., *Polysaccharide-based superporous hydrogels with fast swelling and superabsorbent properties*. *Carbohydrate Polymers*, 2011. **83**: p. 284-290.
  77. Nishinari K., Zhang H., and Ikeda S., *Hydrocolloid gels of polysaccharides and proteins*. *Current Opinion in Colloid & Interface Science*, 2000. **5**: p. 195-201.
  78. Liu T. Y. and Lin Y. L., *Novel pH-sensitive chitosan-based hydrogel for encapsulating poorly water-soluble drugs*. *Acta Biomaterialia*, 2010. **6**: p. 1423-1429.
  79. Marras-Marquez, T., Peña J., and Veiga-Ochoa M., *Agarose drug delivery systems upgraded by surfactants inclusion: Critical role of the pore architecture*. *Carbohydrate Polymers*, 2014. **103**: p. 359-368.
  80. Moebus K., Siepmann J., and Bodmeier R., *Novel preparation techniques for alginate-poloxamer microparticles controlling protein release on mucosal surfaces*. *European Journal of Pharmaceutical Sciences*, 2012. **45**: p. 358-366.

81. Liu J., Chen L., Li L., Hu X., and Cai Y., *Steady-state fluorescence study on release of camptothecin from agar hydrogel*. International Journal of Pharmaceutics, 2004. **287**: p. 13-19.
82. Wall M.E. and Wani M.C., *Camptothecin and taxol: from discovery to clinic*. Journal of Ethnopharmacology, 1996. **51**: p. 239-254.
83. Çirpanli Y., Bilensoy E., Lale Doğan A., and Çaliş S., *Comparative evaluation of polymeric and amphiphilic cyclodextrin nanoparticles for effective camptothecin delivery*. European Journal of Pharmaceutics and Biopharmaceutics, 2009. **73**: p. 82-89.
84. Chourpa I., Millot J.-M., Sockalingum G.D., Riou J.-F., and Manfait M., *Kinetics of lactone hydrolysis in antitumor drugs of camptothecin series as studied by fluorescence spectroscopy*. Biochimica et Biophysica Acta (BBA), 1998. **1379**: p. 353-366.
85. Qiu N., Yin H., Ji B., Klauke N., Glidle A., Zhang Y., Song H., Cai L., Ma L., and Wang G., *Calcium carbonate microspheres as carriers for the anticancer drug camptothecin*. Materials Science and Engineering C, 2012. **32**: p. 2634-2640.
86. Watanabe M., Kawano K., Yokoyama M., Opanasopit P., Okano T., and Maitani Y., *Preparation of camptothecin-loaded polymeric micelles and evaluation of their incorporation and circulation stability*. International Journal of Pharmaceutics, 2006. **308**: p. 183-189.
87. Opanasopit P., Ngawhirunpat T., Chaidedgumjorn A., Rojanarata T., Apirakaramwong A., Phongying S., Choochottiros C., and Chirachanchai S., *Incorporation of camptothecin into N-phthaloyl chitosan-g-mPEG self-assembly micellar system*. European Journal of Pharmaceutics and Biopharmaceutics, 2006. **64**: p. 269-276.
88. Fan H., Huang J., Li Y., Yu J., and Chen J., *Fabrication of reduction-degradable micelle based on disulfide-linked graft copolymer-camptothecin conjugate for enhancing solubility and stability of camptothecin*. Polymer, 2010. **51**: p. 5107-5114.
89. Liu X., Lynn B.C., Zhang J., Song L., Bom D., Du W., Curran D.P., and Burke T.G., *A versatile prodrug approach for liposomal core-loading of water-insoluble camptothecin anticancer drugs*. Journal of the American Chemical Society, 2002. **124**: p. 7650-7651.



90. Chandna P., Khandare J.J., Ber E., Rodriguez-Rodriguez L., and Minko T., *Multifunctional tumor-targeted polymer-peptide-drug delivery system for treatment of primary and metastatic cancers*. *Pharmaceutical Research*, 2010. **27**: p. 2296-2306.
91. Ertl B., Platzer P., Wirth M., and Gabor F., *Poly (D, L-lactic-co-glycolic acid) microspheres for sustained delivery and stabilization of camptothecin*. *Journal of Controlled Release*, 1999. **61**: p. 305-317.
92. Qiu N., Yin H., Ji B., Klauke N., Glidle A., Zhang, Y., Song H., Cai L., Ma L., and Wang G., *Calcium carbonate microspheres as carriers for the anticancer drug camptothecin*. *Materials Science and Engineering: C*, 2012. **32**: p. 2634-2640.
93. Liu J., Li L., and Cai Y., *Immobilization of camptothecin with surfactant into hydrogel for controlled drug release*. *European Polymer Journal*, 2006. **42**: p. 1767-1774.
94. Yang J., Chen J., Pan D., Wan Y., and Wang Z., *pH-sensitive interpenetrating network hydrogels based on chitosan derivatives and alginate for oral drug delivery*. *Carbohydrate Polymers*, 2013. **92**: p. 719-725.
95. Gao C., Liu M., Chen J., and Zhang X., *Preparation and controlled degradation of oxidized sodium alginate hydrogel*. *Polymer Degradation and Stability*, 2009. **94**: p. 1405-1410.
96. George M. and Abraham T., *pH sensitive alginate–guar gum hydrogel for the controlled delivery of protein drugs*. *International Journal of Pharmaceutics*, 2007. **335**: p. 123-129.
97. Abd El-Ghaffar M., Hashem M., El-Awady M., and Rabie A., *pH-sensitive sodium alginate hydrogels for riboflavin controlled release*. *Carbohydrate Polymers*, 2012. **89**: p. 667-675.
98. Pillay V. and FassihiR., *In vitro release modulation from crosslinked pellets for site-specific drug delivery to the gastrointestinal tract: I. Comparison of pH-responsive drug release and associated kinetics*. *Journal of Controlled Release*, 1999. **59**: p. 229-242.
99. Dai Y. N., Li P., Zhang J. P., Wang A. Q., and Wei Q., *Swelling characteristics and drug delivery properties of nifedipine-loaded pH sensitive alginate–chitosan hydrogel beads*. *Journal of Biomedical Materials Research part B: Applied Biomaterials*, 2008. **86**: p. 493-500.

100. Nochos A., Douroumis D., and Bouropoulos N., *In vitro release of bovine serum albumin from alginate/HPMC hydrogel beads*. Carbohydrate Polymers, 2008. **74**: p. 451-457.
101. Colinet I., Dulong V., Mocanu G., Picton L., and Le Cerf D., *New amphiphilic and pH-sensitive hydrogel for controlled release of a model poorly water-soluble drug*. European Journal of Pharmaceutics and Biopharmaceutics, 2009. **73**: p. 345-350.
102. Angadi S.C., Manjeshwar L.S., and Aminabhavi T.M., *Novel composite blend microbeads of sodium alginate coated with chitosan for controlled release of amoxicillin*. International Journal of Biological Macromolecules, 2012. **51**: p. 45-55.
103. AL-Kahtani A.A. and Sherigara B., *Controlled release of diclofenac sodium through acrylamide grafted hydroxyethyl cellulose and sodium alginate*. Carbohydrate Polymers, 2014. **104**: p. 151-157.
104. Du F., Meng H., Xu K., Xu Y., Luo P., Luo Y., Lu W., Huang J., Liu S., and Yu J., *CPT loaded nanoparticles based on beta-cyclodextrin-grafted poly(ethylene glycol)/poly(l-glutamic acid) diblock copolymer and their inclusion complexes with CPT*. Colloids and Surfaces B: Biointerfaces, 2014. **113**: p. 230-236.
105. Tsai Y., Tsai H. H., Wu C. P., and Tsai F. J., *Preparation, characterisation and activity of the inclusion complex of paeonol with  $\beta$ -cyclodextrin*. Food Chemistry, 2010. **120**: p. 837-841.
106. Teixeira R.S., Veiga F.J., Oliveira R.S., Jones S.A., Silva S., Carvalho R.A., and Valente A.J., *Effect of Cyclodextrins and pH on the permeation of tetracaine: Supramolecular assemblies and release behavior*. International Journal of Pharmaceutics, 2014. **466**: p. 349-358.
107. Szente L. and Szemán J., *Cyclodextrins in Analytical Chemistry: Host–Guest Type Molecular Recognition*. Analytical Chemistry, 2013. **85**: p. 8024-8030.
108. Fermiglia M., Ferrone M., Lodi A., and Pricl S., *Host–guest inclusion complexes between anticancer drugs and  $\beta$ -cyclodextrin: computational studies*. Carbohydrate Polymers, 2003. **53**: p. 15-44.
109. Kayaci F. and Uyar T., *Encapsulation of vanillin/cyclodextrin inclusion complex in electrospun polyvinyl alcohol (PVA) nanowebs: prolonged shelf-*

- life and high temperature stability of vanillin*. Food Chemistry, 2012. **133**: p. 641-649.
110. Sambasevam K.P., Mohamad S., Sarih N.M., and Ismail N.A., *Synthesis and Characterization of the Inclusion Complex of  $\beta$ -cyclodextrin and Azomethine*. International Journal of Molecular Sciences, 2013. **14**: p. 3671-3682.
  111. Periasamy R., Rajamohan R., Kothainayaki S., and Sivakumar K., *Spectral investigation and structural characterization of Dibenzalacetone:  $\beta$ -Cyclodextrin inclusion complex*. Journal of Molecular Structure, 2014. **1068**: p. 155-163.
  112. Wang X., Luo Z., and Xiao Z., *Preparation, characterization, and thermal stability of  $\beta$ -cyclodextrin/soybean lecithin inclusion complex*. Carbohydrate Polymers, 2014. **101**: p. 1027-1032.
  113. Chen W., Yang L. J., Ma S. X., Yang X. D., Fan B. M., and Lin J., *Crassicauline  $\alpha/\beta$ -cyclodextrin host-guest system: Preparation, characterization, inclusion mode, solubilization and stability*. Carbohydrate Polymers, 2011. **84**: p. 1321-1328.
  114. Wang J., Cao Y., Sun B., and Wang C., *Physicochemical and release characterisation of garlic oil- $\beta$ -cyclodextrin inclusion complexes*. Food Chemistry, 2011. **127**: p. 1680-1685.
  115. Kang J., Kumar V., Yang D., Chowdhury P. R., and Hohl R. J., *Cyclodextrin complexation: influence on the solubility, stability, and cytotoxicity of camptothecin, an antineoplastic agent*. European Journal of Pharmaceutical Sciences, 2002. **15**: p. 163-170.
  116. Zeng J., Huang H., Liu S., Xu H., Huang J., and Yu J., *Hollow nanosphere fabricated from  $\beta$ -cyclodextrin-grafted  $\alpha$ ,  $\beta$ -poly (aspartic acid) as the carrier of camptothecin*. Colloids and Surfaces B: Biointerfaces, 2013. **105**: p. 120-127.
  117. Hollas M., Chung M. A., and Adams J., *Complexation of pyrene by poly (allylamine) with pendant  $\beta$ -cyclodextrin side groups*. The Journal of Physical Chemistry B, 1998. **102**: p. 2947-2953.
  118. Hassan, R., Makhlof M. T., and El-Shatoury S., *Alginate polyelectrolyte ionotropic gels. Part IX: Diffusion control effects on the relaxation time of sol-gel transformation for transition-divalent metal alginate ionotropic gel complexes*. Colloid & Polymer Science, 1992. **270**: p. 1237-1242.

119. Torres E., Mata Y., Blazquez M., Munoz J., Gonzalez F., and Ballester A., *Gold and silver uptake and nanoprecipitation on calcium alginate beads*. Langmuir, 2005. **21**: p. 7951-7958.
120. Fessenden R.J. and Fessenden J.S., *Fundamentals of organic chemistry*. 1990: Harper & Row.
121. Broido A., *A simple, sensitive graphical method of treating thermogravimetric analysis data*. Journal of Polymer Science Part A-2: Polymer Physics, 1969. **7**: p. 1761-1773.
122. Ramachandran V. S. and Beaudoin J. J., *Handbook of analytical techniques in concrete science and technology: principles, techniques and applications*. 2000: Elsevier.
123. Bushby A. J., P'ng K. M., Young R. D., Pinali C. Knupp C., and Quantock A. J., *Imaging three-dimensional tissue architectures by focused ion beam scanning electron microscopy*. Nature Protocols, 2011. **6**: p. 845-858.
124. Stoppel W. L., White J. C., Horava S. D., Bhatia S. R., and Roberts S. C., *Transport of biological molecules in surfactant–alginate composite hydrogels*. Acta Biomaterialia, 2011. **7**: p. 3988-3998.
125. Harvey D., *Modern analytical chemistry*. 2000: McGraw-Hill New York.
126. Zhong N., Byun H.-S., and Bittman R., *An improved synthesis of 6- O-monotosyl-6-deoxy- $\beta$ -cyclodextrin*. Tetrahedron Letters, 1998. **39**: p. 2919-2920.
127. Pawar S.N. and Edgar K.J., *Chemical modification of alginates in organic solvent systems*. Biomacromolecules, 2011. **12**: p. 4095-4103.
128. Zhang S., Qiao X., Hu B., and Gong Y., *Formation and controlled release of the inclusion complex of water soluble model drug neutral red with  $\beta$ -cyclodextrin grafted sodium alginate*. Journal of Controlled Release, 2011. **152**: p. e116-e118.
129. Ali S. M., Asmat F., and Koketsu M., *<sup>1</sup>H NMR spectroscopic investigation of  $\beta$ -cyclodextrin inclusion compounds with parecoxib*. Journal of Inclusion Phenomena and Macrocyclic Chemistry, 2007. **59**: p. 191-196.
130. Fan L., Luo C., Sun M., Li X., Lu F., and Qiu H., *Preparation of novel magnetic chitosan/graphene oxide composite as effective adsorbents toward methylene blue*. Bioresource Technology, 2012. **114**: p. 703-706.

131. Ganesan P., Kamaraj R., and S., Vasudevan, *Application of isotherm, kinetic and thermodynamic models for the adsorption of nitrate ions on graphene from aqueous solution*. Journal of the Taiwan Institute of Chemical Engineers, 2013. **44**: p. 808-814.
132. Allen S., Mckay G., and Porter J., *Adsorption isotherm models for basic dye adsorption by peat in single and binary component systems*. Journal of Colloid and Interface Science, 2004. **280**: p. 322-333.
133. Jiang N., Xu Y., Dai Y., Luo W., and Dai L., *Polyaniline nanofibers assembled on alginate microsphere for Cu<sup>2+</sup> and Pb<sup>2+</sup> uptake*. Journal of Hazardous Materials, 2012. **215**: p. 17-24.
134. Rout P.R., Bhunia P., and Dash R.R., *Modeling isotherms, kinetics and understanding the mechanism of phosphate adsorption onto a solid waste: Ground Burnt Patties*. Journal of Environmental Chemical Engineering, 2014. **2**: p. 1331-1342.
135. Wu Q., Chen J., Clark M., and Yu Y., *Adsorption of copper to different biogenic oyster shell structures*. Applied Surface Science, 2014. **311**: p. 264-272.
136. Hefne J.A., Mekhemer W.K., Alandis N.M., Aldayel O.A., and Alajyan T., *Removal of Silver (I) from Aqueous Solutions by Natural Bentonite*. Journal of King Abdulaziz University, 2010. **22**: p. 155-176.
137. Hassan R., *Alginate polyelectrolyte ionotropic gels*. Journal of Materials Science, 1993. **28**: p. 384-388.
138. He Y., Zhang N., Gong Q., Qiu H., Wang W., Liu Y., and Gao J., *Alginate/graphene oxide fibers with enhanced mechanical strength prepared by wet spinning*. Carbohydrate Polymers, 2012. **88**: p. 1100-1108.
139. Ionita M., Pandele M.A., and Iovu H., *Sodium alginate/graphene oxide composite films with enhanced thermal and mechanical properties*. Carbohydrate Polymers, 2013. **94**: p. 339-344.
140. Zaafarany I., Khairou K., Tirkistani F., Iqbal S., Khairy M., and Hassan R., *Kinetics and Mechanism of Non-Isothermal Decomposition of Ca (II)-, Sr (II)- and Ba (II)-Cross-Linked Divalent Metal-Alginate Complexes*. International Journal of Chemistry, 2012. **4**: p. 7-14

141. Haubner K., Murawski J., Olk P., Eng L. M., Ziegler C., Adolphi B., and Jaehne E., *The route to functional graphene oxide*. Chemical Physics Chemistry, 2010. **11**: p. 2131-2139.
142. Ngah W. and Fatinathan S., *Adsorption of Cu (II) ions in aqueous solution using chitosan beads, chitosan–GLA beads and chitosan–alginate beads*. Chemical Engineering Journal, 2008. **143**: p. 62-72.
143. Xiong L., Chen C., Chen Q., and Ni J., *Adsorption of Pb (II) and Cd (II) from aqueous solutions using titanate nanotubes prepared via hydrothermal method*. Journal of Hazardous Materials, 2011. **189**: p. 741-748.
144. Qin Q., Wang Q., Fu D., and Ma J., *An efficient approach for Pb (II) and Cd (II) removal using manganese dioxide formed in situ*. Chemical Engineering Journal, 2011. **172**(1): p. 68-74.
145. Bée A., Talbot D., Abramson S., and Dupuis V., *Magnetic alginate beads for Pb (II) ions removal from wastewater*. Journal of Colloid and Interface Science, 2011. **362**: p. 486.
146. Mata Y., Blázquez M., Ballester A., González F., and Munoz J., *Biosorption of cadmium, lead and copper with calcium alginate xerogels and immobilized Fucus vesiculosus*. Journal of Hazardous Materials, 2009. **163**: p. 555-562.
147. Ritger P. L. and Peppas N. A., *A simple equation for description of solute release II. Fickian and anomalous release from swellable devices*. Journal of Controlled Release, 1987. **5**: p. 37-42.
148. Papadopoulou V., Kosmidis K., Vlachou M., and Macheras P., *On the use of the Weibull function for the discernment of drug release mechanisms*. International Journal of Pharmaceutics, 2006. **309**: p. 44-50.
149. Ritger P. L. and Peppas N. A., *A simple equation for description of solute release I. Fickian and non-Fickian release from non-swellable devices in the form of slabs, spheres, cylinders or discs*. Journal of Controlled Release, 1987. **5**: p. 23-36.
150. Pasparakis G. and Bouropoulos N., *Swelling studies and in vitro release of verapamil from calcium alginate and calcium alginate–chitosan beads*. International Journal of Pharmaceutics, 2006. **323**: p. 34-42.
151. Masaro L. and Zhu X., *Physical models of diffusion for polymer solutions, gels and solids*. Progress in Polymer Science, 1999. **24**: p. 731-775.

152. Grinsted R.A., Clark L., and Koenig J.L., *Study of cyclic sorption-desorption into poly (methyl methacrylate) rods using NMR imaging*. *Macromolecules*, 1992. **25**: p. 1235-1241.
153. Alfrey T., Gurnee E., and Lloyd W., *Diffusion in glassy polymers*. *Journal of Polymer Science Part C: Polymer Symposia*. 1966. **12**: p. 249-261.
154. Kuipers N. J. and Beenackers A. A., *Non-fickian diffusion with reaction in glassy polymers with swelling induced by the penetrant—effects of consecutive and parallel reactions*. *Polymer Engineering & Science*, 1996. **36**: p. 2108-2118.
155. Mohan N. and Nair P.D., *Novel porous, polysaccharide scaffolds for tissue engineering applications*. *Trends in Biomaterials and Artificial Organs*, 2005. **18**: p. 219-224.
156. Arora G., Malik K., Singh I., Arora S., and Rana, R., *Formulation and evaluation of controlled release matrix mucoadhesive tablets of domperidone using Salvia plebeian gum*. *Journal of Advanced Pharmaceutical Technology & Research*, 2011. **2**: p. 163.
157. Koester L.c.S., Ortega G.G., Mayorga P., and Bassani V.L., *Mathematical evaluation of in vitro release profiles of hydroxypropylmethylcellulose matrix tablets containing carbamazepine associated to  $\beta$ -cyclodextrin*. *European Journal of Pharmaceutics and Biopharmaceutics*, 2004. **58**: p. 177-179.
158. Gao Z., *Mathematical modeling of variables involved in dissolution testing*. *Journal of Pharmaceutical Sciences*, 2011. **100**: p. 4934-4942.
159. Karewicz A., Zasada K. Szczubiałka K., Zapotoczny S., Lach R., and Nowakowska M., *“Smart” alginate–hydroxypropylcellulose microbeads for controlled release of heparin*. *International Journal of Pharmaceutics*, 2010. **385**: p. 163-169.
160. Paczkowski J., Lamberts J., Paczkowska B., and Neckers D., *Photophysical properties of rose bengal and its derivatives (XII)*. *Journal of Free Radicals in Biology & Medicine*, 1985. **1**: p. 341-351.
161. Stevelmans S., Van Hest J., Jansen J., Van Boxtel D., De Brabander-van den Berg E., and Meijer E., *Synthesis, characterization, and guest-host properties of inverted unimolecular dendritic micelles*. *Journal of the American Chemical Society*, 1996. **118**: p. 7398-7399.

162. Velleman L., Triani G., Evans P. J., Shapter J. G., and Losic D., *Structural and chemical modification of porous alumina membranes*. Microporous and Mesoporous Materials, 2009. **126**: p. 87-94.
163. Kirgan R. A., Witek P., Moore C., and Rillema D.P., *Physical, photophysical and structural properties of ruthenium (II) complexes containing a tetradentate bipyridine ligand*. Dalton Transactions, 2008: p. 3189-3198.
164. Kruszewski S. and Kruszewska D., *Fluorescence Spectroscopy in Camptothecins Studies*. Acta Physica Polonica, A., 2010. **118**: p. 99-102.
165. Dey J. and Warner I. M., *Excited state tautomerization of camptothecin in aqueous solution*. Journal of Photochemistry and Photobiology A: Chemistry, 1996. **101**: p. 21-27.
166. Dey J. and Warner I. M., *Spectroscopic and photophysical studies of the anticancer drug: camptothecin*. Journal of luminescence, 1997. **71**: p. 105-114.
167. di Nunzio M.R., Cohen B., and Douhal A., *Structural photodynamics of camptothecin, an anticancer drug in aqueous solutions*. The Journal of Physical Chemistry A, 2011. **115**: p. 5094-5104.
168. Khare A. R. and Peppas N. A., *Swelling/deswelling of anionic copolymer gels*. Biomaterials, 1995. **16**: p. 559-567.
169. Hua S., Ma H., Li X., Yang H., and Wang A., *pH-sensitive sodium alginate/poly (vinyl alcohol) hydrogel beads prepared by combined  $Ca^{2+}$  crosslinking and freeze-thawing cycles for controlled release of diclofenac sodium*. International Journal of Biological Macromolecules, 2010. **46**: p. 517-523.
170. Paradee N., Sirivat A., Niamlang S., and Prissanaroon-Ouajai W., *Effects of crosslinking ratio, model drugs, and electric field strength on electrically controlled release for alginate-based hydrogel*. Journal of Materials Science: Materials in Medicine, 2012. **23**: p. 999-1010.
171. Patel Y. L., Sher P., and Pawar A. P., *The effect of drug concentration and curing time on processing and properties of calcium alginate beads containing metronidazole by response surface methodology*. AAPS Pharmaceutical Science Technology, 2006. **7**: p. E24-E30.



172. Adams D. and Morgan L., *Tumor physiology and charge dynamics of anticancer drugs: implications for camptothecin-based drug development*. Current Medicinal Chemistry, 2011. **18**: p. 1367-1372
173. Jia Y., Zhang J., Hu W., and Wang, C., *Swelling studies and in vitro release of acemetacin and BSA from alginate gel beads crosslinked with  $Ca^{2+}$  or  $Ba^{2+}$* . Journal of Wuhan University of Technology-Mater, 2012. **27**: p. 669-674.
174. Kikuchi A., Kawabuchi M., Watanabe A., Sugihara M., Sakurai Y., and Okano T., *Effect of  $Ca^{2+}$ -alginate gel dissolution on release of dextran with different molecular weights*. Journal of Controlled Release, 1999. **58**: p. 21-28.
175. Garbayo I., León R., and Vilchez C., *Diffusion characteristics of nitrate and glycerol in alginate*. Colloids and Surfaces B: Biointerfaces, 2002. **25**: p. 1-9.
176. Sinclair G. W. and Peppas N. A., *Analysis of non-Fickian transport in polymers using simplified exponential expressions*. Journal of Membrane Science, 1984. **17**: p. 329-331.
177. Hadjitheodorou A. and Kalosakas G., *Analytical and numerical study of diffusion-controlled drug release from composite spherical matrices*. Materials Science and Engineering C, 2014. **42**: p. 681-690.
178. Samanta H. S. and Ray S. K., *Synthesis, characterization, swelling and drug release behavior of semi-interpenetrating network hydrogels of sodium alginate and polyacrylamide*. Carbohydrate Polymers, 2014. **99**: p. 666-678.
179. Stockwell A., Davis S., and Walker S., *In vitro evaluation of alginate gel systems as sustained release drug delivery systems*. Journal of Controlled Release, 1986. **3**: p. 167-175.
180. Talukdar M. M. and Kinget R., *Comparative study on xanthan gum and hydroxypropylmethyl cellulose as matrices for controlled-release drug delivery. II. Drug diffusion in hydrated matrices*. International Journal of Pharmaceutics, 1997. **151**: p. 99-107.
181. Yuan Z., Ye Y., Gao F., Yuan H., Lan M., Lou K., and Wang W., *Chitosan-graft- $\beta$ -cyclodextrin nanoparticles as a carrier for controlled drug release*. International Journal of Pharmaceutics, 2013. **446**: p. 191-198.
182. Zhu J. J., Wang Y. L., Cai K. Y., Jiang B. Y., and Wang M., *Preparation of a Novel Biodegradable  $\beta$ -Cyclodextrin-Containing Polymer*. Journal of Chongqing University, 2009. **8**: p. 217-221.

183. Vizitiu D., Walkinshaw C.S., Gorin B.I., and Thatcher G.R., *Synthesis of monofacially functionalized cyclodextrins bearing amino pendent groups*. The Journal of Organic Chemistry, 1997. **62**: p. 8760-8766.
184. Shanmuga Priya A., Sivakamavalli J., Vaseeharan B., and Stalin T., *Improvement on dissolution rate of inclusion complex of Rifabutin drug with  $\beta$ -cyclodextrin*. International Journal of Biological Macromolecules, 2013. **62**: p. 472-480.
185. Bellamy L. J., *Infra-red spectra of complex molecules*. 1954.
186. Pawar S. N. and Edgar K. J., *Alginate esters via chemoselective carboxyl group modification*. Carbohydrate Polymers, 2013. **98**: p. 1288-1296.
187. Soares J., Santos J., Chierice G., and Cavalheiro E., *Thermal behavior of alginic acid and its sodium salt*. Eclética química, 2004. **29**: p. 57-64.
188. Pluemsab W., Sakairi N., and Furuike T., *Synthesis and inclusion property of  $\alpha$ -cyclodextrin-linked alginate*. Polymer, 2005. **46**: p. 9778-9783.
189. Ge X., He J., Qi F., Yang Y., Huang Z., Lu R., and Huang L., *Inclusion complexation of chloropropham with  $\beta$ -cyclodextrin: Preparation, characterization and molecular modeling*. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, 2011. **81**: p. 397-403.
190. Rajendiran N. and Siva S., *Inclusion complex of sulfadimethoxine with cyclodextrins: Preparation and characterization*. Carbohydrate Polymers, 2014. **101**: p. 828-836.
191. Subramanian N., Sundaraganesan N., Sudha S., Aroulmoji V., Sockalingam G., and Bergamin M., *Experimental and theoretical investigation of the molecular and electronic structure of anticancer drug camptothecin*. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, 2011. **78**: p. 1058-1067.
192. Ali S.M., Asmat F., Maheshwari A., and Koketsu M., *Complexation of fluoxetine hydrochloride with  $\beta$ -cyclodextrin. A proton magnetic resonance study in aqueous solution*. Il Farmaco, 2005. **60**: p. 445-449.
193. Meier M. M., Luiz M. T., Szpoganicz B., and Soldi V., *Thermal analysis behavior of  $\beta$ -and  $\gamma$ -cyclodextrin inclusion complexes with capric and caprylic acid*. Thermochemica Acta, 2001. **375**: p. 153-160.
194. Xu P., Song L. X., and Wang H. M., *Study on thermal decomposition behavior of survived  $\beta$ -cyclodextrin in its inclusion complex of clove oil by*

- nonisothermal thermogravimetry and gas chromatography coupled to time-of-flight mass spectrometry analyses*. *Thermochimica Acta*, 2008. **469**: p. 36-42.
195. Le Xin S., Guo X. Q., Du F. Y., and Bai L., *Thermal degradation comparison of polypropylene glycol and its complex with  $\beta$ -cyclodextrin*. *Polymer Degradation and Stability*, 2010. **95**: p. 508-515.
196. Kunadharaju S. and Savva M., *Thermodynamic studies of 10-hydroxycamptothecin in aqueous solutions*. *Journal of Chemical & Engineering Data*, 2009. **55**: p. 103-112.
197. Fenoradosa T.A., Ali G., Delattre C. Laroche C., Petit E., Wadouachi A., and Michaud P., *Extraction and characterization of an alginate from the brown seaweed *Sargassum turbinarioides* Grunow*. *Journal of Applied Phycology*, 2010. **22**: p. 131-137.
198. Kinh C.D., Thien T.V., Hoa T.T., and D.Q. Khieu, *Interpretation of  $^1\text{H-NMR}$  spectrum of alginate by  $^1\text{H-}^1\text{H}$  TOCSY and COSY spectrum*. *Journal of Chemistry*, 2007. **45**: p. 772-775.
199. Canbolat M.F., Celebioglu A., and Uyar T., *Drug delivery system based on cyclodextrin-naproxen inclusion complex incorporated in electrospun polycaprolactone nanofibers*. *Colloids and Surfaces B: Biointerfaces*, 2014. **115**: p. 15-21.
200. Ezell E. L. and Smith L. L.,  *$^1\text{H}$ -and  $^{13}\text{C}$ -NMR spectra of camptothecin and derivatives*. *Journal of Natural Products*, 1991. **54**: p. 1645-1650.
201. Peppas N.A. and Buri P.A., *Surface, interfacial and molecular aspects of polymer bioadhesion on soft tissues*. *Journal of Controlled Release*, 1985. **2**: p. 257-275.
202. Lueßen H., Lehr C. M., Rentel C. O., Noach A., De Boer A., Verhoef J., and Junginger H., *Bioadhesive polymers for the peroral delivery of peptide drugs*. *Journal of Controlled Release*, 1994. **29**: p. 329-338.
203. Davidovich-Pinhas M. and Bianco-Peled H., *Alginate-PEGAc: A new mucoadhesive polymer*. *Acta Biomaterialia*, 2011. **7**: p. 625-633.
204. Park K. and Robinson J. R., *Bioadhesive polymers as platforms for oral-controlled drug delivery: method to study bioadhesion*. *International Journal of Pharmaceutics*, 1984. **19**: p. 107-127.
205. Chickering D. and Mathiowitz E., *Bioadhesive microspheres: I. A novel electrobalance-based method to study adhesive interactions between*

- individual microspheres and intestinal mucosa*. Journal of Controlled Release, 1995. **34**: p. 251-262.
206. Grabovac V., Guggi D., and Bernkop-Schnürch A., *Comparison of the mucoadhesive properties of various polymers*. Advanced Drug Delivery Reviews, 2005. **57**: p. 1713-1723.
207. Pluemsab W., Fukazawa Y., Furuike T., Nodasaka Y., and Sakairi N., *Cyclodextrin-linked alginate beads as supporting materials for Sphingomonas cloacae, a nonylphenol degrading bacteria*. Bioresource Technology, 2007. **98**: p. 2076-2081.
208. Loftsson T., Vogensen S. B., Brewster M. E., and Konráðsdóttir F., *Effects of cyclodextrins on drug delivery through biological membranes*. Journal of Pharmaceutical Sciences, 2007. **96**: p. 2532-2546.
209. Aiping Z., Jianhong L., and Wenhui, Y., *Effective loading and controlled release of camptothecin by O-carboxymethylchitosan aggregates*. Carbohydrate Polymers, 2006. **63**: p. 89-96.
210. Liu J. and Li L., *SDS-aided immobilization and controlled release of camptothecin from agarose hydrogel*. European Journal of Pharmaceutical Sciences, 2005. **25**: p. 237-244.
211. Prabakaran M. and Jayakumar R., *Chitosan- graft- $\beta$ -cyclodextrin scaffolds with controlled drug release capability for tissue engineering applications*. International Journal of Biological Macromolecules, 2009. **44**: p. 320-325.
212. Loftsson T. and Brewster M.E., *Cyclodextrins as functional excipients: methods to enhance complexation efficiency*. Journal of Pharmaceutical Sciences, 2012. **101**: p. 3019-3032.
213. Loftsson T. and Friðriksdóttir H., *The effect of water-soluble polymers on the aqueous solubility and complexing abilities of  $\beta$ -cyclodextrin*. International Journal of Pharmaceutics, 1998. **163**: p. 115-121.
214. di Cagno M., Terndrup Nielsen T., Lambertsen Larsen K., Kuntsche J., and Bauer-Brandl A.,  *$\beta$ -Cyclodextrin-dextran polymers for the solubilization of poorly soluble drugs*. International Journal of Pharmaceutics, 2014. **468**: p. 258-263.
215. de Jesus M.B., Fraceto L.F., Martini M.F., Pickholz M., Ferreira C.V., and de Paula E., *Non-inclusion complexes between riboflavin and cyclodextrins*. Journal of Pharmacy and Pharmacology, 2012. **64**: p. 832-842.

216. Hasan A.S., Socha M., Lamprecht A., Ghazouani F.E., Sapin A., Hoffman M., Maincent P., and Ubrich, N., *Effect of the microencapsulation of nanoparticles on the reduction of burst release*. International Journal of Pharmaceutics, 2007. **344**: p. 53-61.
217. Thote A. J. and Gupta R. B., *Formation of nanoparticles of a hydrophilic drug using supercritical carbon dioxide and microencapsulation for sustained release*. Nanomedicine: Nanotechnology, Biology and Medicine, 2005. **1**: p. 85-90.
218. Qian Y., Lan Y., Xu J., Ye F., and Dai S., *Fabrication of polyimide-based nanocomposites containing functionalized graphene oxide nanosheets by in-situ polymerization and their properties*. Applied Surface Science, 2014. **314**: p. 991-999.

# Appendices

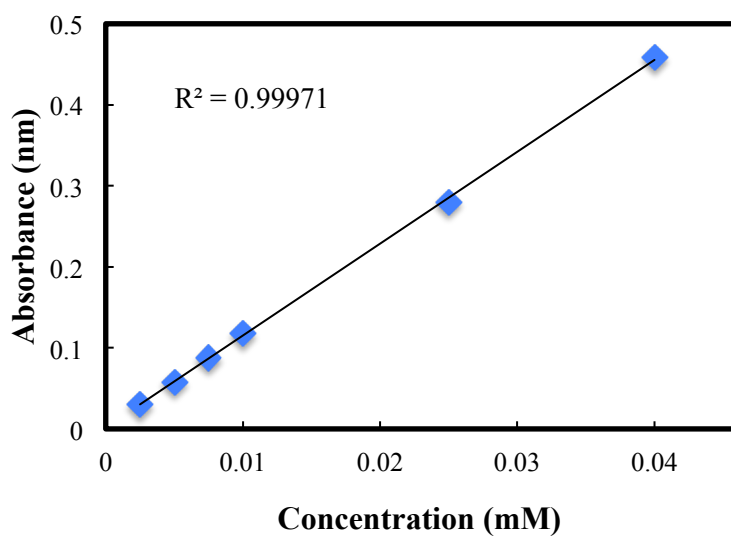


Figure 1 Calibration curve for  $\text{Cu}^{2+}$  ions.

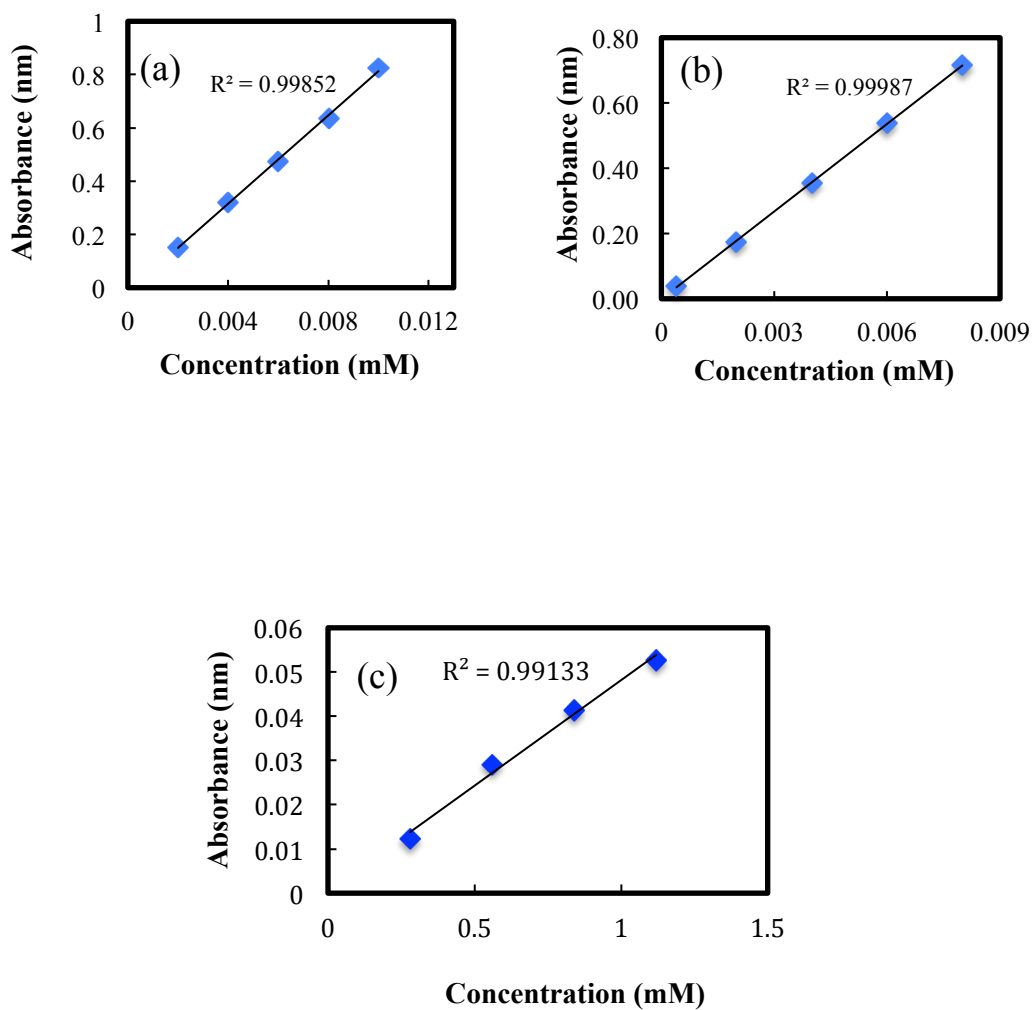


Figure 2 Calibration curves of (a) RB, (b) Rubpy and (c) CPT.

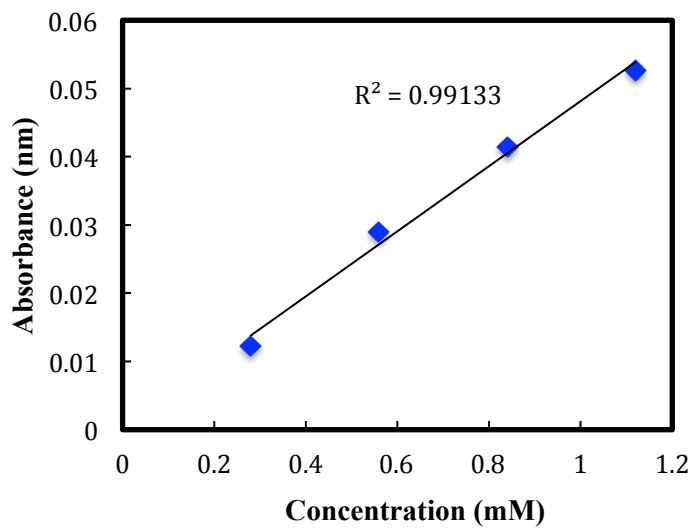


Figure 3 Calibration curves of CPT.