References

Abragam, A., (1961), "The Principles of Nuclear Magnetism", *Clarendon Press,* Oxford science publications.

Adamo, C., and Barone, V. (1999), "Toward reliable density functional methods without adjustable parameters: The PBE0 model", *The Journal of Chemical Physics*, Vol. 110, pp. 6158-6170.

Adhikari, S., Daftardar, S., Fratev, F., Rivera, M., Sirimulla, S., Alexander, K., and Boddu, S. H. S., (2018), "Elucidation of the orientation of selected drugs with 2-hydroxylpropyl-β-cyclodextrin using 2D-NMR spectroscopy and molecular modeling", *International Journal of Pharmaceutics*, Vol.545, No.1–2, pp.357–365.

Aime, S., Delli Castelli, D., and Terreno, E., (2005), "Highly sensitive MRI chemical exchange saturation transfer agents using liposomes", *Angewandte Chemie - International Edition*, Vol.44, No.34, pp.5513–5515.

Al-Ajmi, M.F., Hussain, A., and Ahmed, F., (2016), "Novel synthesis of ZnO nanoparticles and their enhanced anticancer activity: Role of ZnO as a drug carrier", *Ceramics International,* Vol. 42, pp.4462–4469.

Ali, S. M., and Shamim, S., (2014), "Structure elucidation of benzhexol-β-cyclodextrin complex in aqueous medium by 1H NMR spectroscopic and computational methods", *Journal of Encapsulation and Adsorption Sciences*, Vol. 4, pp.63-70.

Ali, S. M., and Shamim, S., (2015), "Analysis of computational models of β-cyclodextrin complexes: structural studies of morniflumate hydrochloride and β-cyclodextrin complex in aqueous solution by quantitative ROESY analysis", *Journal of Inclusion Phenomena and Macrocyclic Chemistry,* Vol. 83, pp.19–26.

Ali, S. M., Fatma, K., and Dhokale, S., (2013), "Structure elucidation of β-cyclodextrin–xylazine complex by a combination of quantitative ^{1}H–^{1}H ROESY and molecular dynamics studies", *Beilstein Journal of Organic Chemistry*, Vol. 9, pp.1917–1924.

Allen, T.M., and Cullis, P.R., (2004), "Drug delivery systems: entering the mainstream", *Science,* Vol. 303, 1818–1822.

Almeida, A.J., and Souto, E., (2007), "Solid lipid nanoparticles as a drug delivery system for peptides and proteins", *Advanced Drug Delivery Review*, Vol. 59, 478–490.

Al-Rawashdeh, N.A.F., (2005), "Interactions of nabumetone with β-cyclodextrin studied by 432 fluorescence measurements", *Journal of Inclusion Phenomena and Macrocyclic Chemistry*, Vol. 51, 27-32.

Amato, M. E., Djedaïni-Pilard, F., Perly, B., and Scarlata, G., (1992), "High field NMR techniques and molecular modelling study of the inclusion complexes of the nootropic drug tenilsetam (CAS-997) in cyclodextrins", *Journal of Chemical Society, Perkin Transaction 2*, No.11, pp.2065–2069.

Ammalahti, E., Bardet, M., Molko, D., and Cadet, J., (1996), "Evaluation of Distances from ROESY Experiments with the Intensity-Ratio Method", *Journal of Magnetic Resonancne A*, Vol. 122, pp.230–232.

Amsden, B., (1998), "Solute diffusion within hydrogels. Mechanisms and models", *Macromolecules*, Vol. 31, 8382-95.

Anczewski, W., Dodziuk, H., and Ejchart, A., (2003), "Manifestation of chiral recognition of camphor enantiomers by α-cyclodextrin in longitudinal and transverse relaxation rates of the corresponding 1:2 complexes and determination of the orientation of the guest inside the host capsule", *Chirality*, Vol.15, No.7, pp.654–659.

Andrew, E. R., (2007), "Magic Angle Spinning", In *eMagRes*. American Cancer Society.

Andrew, E. R., Bradbury, A., and Eades, R. G., (1958), "Nuclear Magnetic Resonance Spectra from a Crystal rotated at High Speed", *Nature*, Vol.182, No.4650, pp.1659.

Anet, F. A. L., and Bourn, A. J. R., (1965), "Nuclear Magnetic Resonance Spectral Assignments from Nuclear Overhauser Effects1", *Journal of the American Chemical Society*, Vol.87, No.22, pp.5250–5251.

Anjana, M. N., Nair, S. C., and Joseph, J., (2013), "An updated review of cyclodextrins -an enabling technology for challenging pharmaceutical formulations", *International Journal of Pharmacy and Pharmaceutical Sciences*, Vol.5, No.3, pp.54–58.

Aso, Y., and Yoshioka, S., (2006), "Molecular mobility of nifedipine-PVP and phenobarbital-PVP solid

dispersions as measured by13C-NMR spin-lattice relaxation time", *Journal of Pharmaceutical Sciences*, Vol.95, No.2, pp.318–325.

Avadhut, Y.S., Weber, J., Hammarberg, E., Feldmann, C., and Schmedt auf der Günne, J., (2012), "Structural investigation of aluminium doped ZnO nanoparticles by solid-state NMR spectroscopy", *Physical chemistry chemical physics*, Vol. 14, pp.11610–11625.

Babonneau, F., Baccile, N., Laurent, G., Maquet, J., Azaïs, T., Gervais, C., and Bonhomme, C., (2010), "Solid-state nuclear magnetic resonance: A valuable tool to explore organic-inorganic interfaces in silica-based hybrid materials", *Comptes Rendus Chimie*, Vol.13, No.1–2, pp.58–68.

Babonneau, F., Yeung, L., Steunou, N., Gervais, C., Ramila, A., and Vallet-Regi, M., (2004), "Solid State NMR Characterisation of Encapsulated Molecules in Mesoporous Silica", *Journal of Sol-Gel Science and Technology*, Vol. 31, pp.219–223.

Bain, A D, and Cramer, J. A., (1993), "A Method for Optimizing the Study of Slow Chemical Exchange by NMR Spin-Relaxation Measurements. Application to Tripodal Carbonyl Rotation in a Metal Complex", *Journal of Magnetic Resonance, Series A*, Vol.103, No.2, pp.217–222.

Bain, A. D., and Cramer, J. A., (1993), "Optimal NMR measurements for slow exchange in two-site and three-site systems", *Journal of Physical Chemistry*, Vol.97, No.12, pp.2884–2887.

Bain, Alex D, (2003), "Chemical exchange in NMR", *Progress in Nuclear Magnetic Resonance Spectroscopy*, Vol.43, No.3, pp.63–103.

Bain, Alex D, (2008), "Chapter 2 - Chemical Exchange",In G. A. Webb (Ed.) (Vol. 63, pp. 23–48). Academic Press.

Bakkour, Y., Vermeersch, G., Morcellet, M., Boschin, F., Martel, B., and Azaroual, N., (2006), "Formation of cyclodextrin inclusion complexes with doxycyclin-hyclate: NMR investigation of their characterisation and stability", *Journal of Inclusion Phenomena*, Vol.54, No.1–2, pp.109–114.

Baruah, S., and Dutta, J., (2009), "Hydrothermal growth of ZnO nanostructures", *Science and Technology of Advanced Materials*, Vol.10, No.1, pp.1-18.

Bax, A., and Davis, D. G., (1985), "MLEV-17-based two-dimensional homonuclear magnetization transfer spectroscopy", *Journal of Magnetic Resonance (1969)*, Vol.65, No.2, pp.355–360.

Becker E.D. (2000), "Relaxation, In *High resolution NMR theory and chemical application,* third; Academic Press, California (USA)", pp.206-224.

Becker, E. D., (1999), "*High Resolution NMR. Theory and Chemical Applications*",*Elsevier*.

Bednarek, E., Bocian, W., Poznański, J., Sitkowski, J., Sadlej-Sosnowska, N., and Kozerski, L., (2002), "Complexation of steroid hormones: prednisolone, ethinyloestradiol and estriol with β-cyclodextrin. An aqueous 1H NMR study", *Journal of the Chemical Society, Perkin Transactions 2*, No.5, pp.999–1004.

Bednarek, E., Bocian, W., Poznański, J., Sitkowski, J., Sadlej-Sosnowska, N. and Kozerski, L. (2002), "Complexation of steroid hormones: prednisolone, ethinyloestradiol and estriol with cyclodextrin. An aqueous 1H NMR study", *Journal of Chemical Society Perkin Transactions*, Vol. 2, pp.999-1004.

Bell, R. A., and Saunders, J. K., (1970), "Correlation of the intramolecular nuclear Overhauser effect with internuclear distance", *Canadian Journal of Chemistry*, Vol.48, No.7, pp.1114–1122.

Berg, U., Berglund, M., Bladh, N., Svensson, A., and Stödeman, M., (1996), "Structure and dynamic stability of cyclodextrin inclusion complexes with 1,4-Disubstituted bicyclo-[2.2.2]octanes", *Journal of Inclusion Phenomena and Molecular Recognition in Chemistry*, Vol.25, No.1–3, pp.73–76.

Bergeron, R., and Rowan, R., (1976), "The molecular disposition of sodium p-nitrophenolate in the cavities of cycloheptaamylose and cyclohexaamylose in solution", *Bioorganic Chemistry*, Vol. 5, pp.425-436.

Bergonzi, M. C., Bilia, A. R., Bari, L. Di., Mazzi, G., and Vincieri, F. F., (2007), "Studies on the interactions between some flavonols and cyclodextrins", *Bioorganic and Medicinal Chemistry Letters*, Vol.17, No.21, pp.5744–5748.

Berman, H. M., Westbrook, J., Feng, Z., Gilliland, G., Bhat, T. N., Weissig H., Shindyalov, I. N., and Bourne, P. E. (2000), "The protein data bank", *Nuclei Acid Research*, Vol. 28, pp.235-242.

Bertacche, V., Lorenzi, N., Nava, D., Pini, E., and Sinico, C., (2006), "Host-guest interaction study of resveratrol with natural and modified cyclodextrins", *Journal of Inclusion Phenomena and Macrocyclic Chemistry*, Vol.55, No.3–4, pp.279–287.

Bertini, I., Emsley, L., Lelli, M., Luchinat, C., Mao, J., and Pintacuda, G., (2010), "Ultrafast MAS Solid-State NMR Permits Extensive 13C and 1H Detection in Paramagnetic Metalloproteins", *Journal of the American Chemical Society*, Vol.132, No.16, pp.5558–5559.

Bettinetti, G.P., Mura, P., Liguori, A., Bramanti, G., and Giordano, F., (1989), "Solubilization and interaction of naproxen with cyclodextrins in aqueous solution and in the solid state", *Farmaco*, Vol. 44 , pp.195–213.

Beusekom, B. Van., (2007), "Applications of NMR in Structure-Based Drug Discovery", *Structure-Based*

Drug Discovery, pp.97–141.
Bhagwat, R. R., and Vaidhy I. S. (2013), "Novel Drug Delivery Systems: An Overview", *International journal of pharmaceutical sciences and research,* Vol. 4, No.3, pp.970–982.
Bhanji, N. H., Chouinard, G., and Margolese, H. C., (2004), "A review of compliance, depot intramuscular antipsychotics and the new long-acting injectable atypical antipsychotic risperidone in schizophrenia", *European Neuropsychopharmacology*, Vol.14, No.2, pp.87–92.
Blechta, V., and Freeman, R., (1993), "Multi-site Hadamard NMR spectroscopy", *Chemical Physics Letters*, Vol.215, No.4, pp.341–346.
Bloch, F., Hansen, W. W., and Packard, M., (1946), "Nuclear Induction", *Phys. Rev.*, Vol.69, No.3–4, pp.127.
Bloembergen, N., Purcell, E. M., and Pound, R. V, (1948), "Relaxation Effects in Nuclear Magnetic Resonance Absorption", *Phys. Rev.*, Vol.73, No.7, pp.679–712.
Bober, Z., Aebisher, D., Tabarkiewicz, J., Guz, W., Tutka, P., and Bartusik-Aebisher, D.,(2017), " Investigation of pharmaceuticals by nuclear magnetic resonance imaging and spectroscopy" *European Journal of Clinical and Experimental Medicine*, Vol. 15, No. 2, pp. 110–119.
Boros, S., and Batta, G., (2016), "Offset-compensated and zero-quantum suppressed ROESY provides accurate 1 H– 1 H distances in small to medium-sized molecules", *Magnetic Resonance in Chemistry*, Vol.54, No.12, pp.947–952.
Bothner-By, A. A., Stephens, R. L., Lee, J., Warren, C. D., and Jeanloz, R. W., (1984), "Structure determination of a tetrasaccharide: transient nuclear Overhauser effects in the rotating frame", *Journal of the American Chemical Society*, Vol.106, No.3, pp.811–813.
Bouttefeux, O., Beloqui, A., and Préat, V., (2016), "Delivery of peptides via the oral route: Diabetes treatment by peptide-loaded nanoparticles", *Current Pharmaceutical Design*, Vol. 22, pp.1161–1176.
Bovey, F.A., (1982), "High Resolution Nuclear Magnetic Resonance of Macromolecules", *Academic Press, New York*.
Brewster, M. E., and Loftsson, T. (2007), "Cyclodextrins as pharmaceutical solubilizers", *Advanced Drug Delivery Reviews*, Vol. 59, pp.645–666.
Brewster, M. E., and Loftsson, T., (2007), "Cyclodextrins as pharmaceutical solubilizers", *Advanced Drug Delivery Reviews*, Vol.59, No.7, pp.645–666.
Brocchini, S., and Duncan, R., (1999), "Pendant drugs, release from polymers", *Encyclopedia of Controlled Drug Delivery*, pp. 786-816.
Brodard-Severac, F., Guerrero, G., Maquet, J., Florian, P., Gervais, C., and Mutin, P. H., (2008), "High-field 17O MAS NMR investigation of phosphonic acid monolayers on titania", *Chemistry of Materials*, Vol.20, No.16, pp.5191–5196.
Brown, S.P., and Spiess, H.W., (2001), "Advanced solid-state {NMR} methods for the elucidation of structure and dynamics of molecular, macromolecuar and supramolecular systems", *Chemical Review*, Vol.101, pp.4125–4155.
Burke, P.A., (1996), "Determination of internal pH in PLGA microspheres using 31P NMR spectroscopy", *Proceedings of the Controlled Release Society*, Vol. 23. 133-134.
Butts, C. P., Jones, C. R., Towers, E. C., Flynn, J. L., Appleby, L., and Barron, N. J., (2011), "Interproton distance determinations by NOE - Surprising accuracy and precision in a rigid organic molecule", *Organic and Biomolecular Chemistry*, Vol.9, No.1, pp.177–184.
Byrn, S. R.; Pfeiffer, R. R.; Stowell, J. G., (1999), "Solid State Chemistry of Drug", *West Lafayette, Ind. : SSCI, Inc.* 2nd ed.
Cai, X., Luo, Y., Zhang, W., Du, D., and Lin, Y., (2016), "pH-Sensitive ZnO Quantum Dots–Doxorubicin Nanoparticles for Lung Cancer Targeted Drug Delivery", *ACS Applied Materials & Interfaces*, Vol.6b, pp.04933.
Cameron, K.S., and Fielding, L., (2001), "NMR Diffusion Spectroscopy as a Measure of Host-Guest Complex Association Constants and as a Probe of Complex Size", *Journal of Organic Chemistry*, Vol. 66, pp. 6891–6895.
Cameron, K.S., and Fielding, L., (2002), "NMR diffusion coefficient study of steroid-cyclodextrin inclusion complexes", *Magnetic Resonance Chemistry*, 40, S106–S109.
Carofiglio, T., Fornasier, R., Jicsinszky, L., Saielli, G., Tonellato, U., and Vetta, R., (2002), "Capillary electrophoresis, ROESY NMR and molecular modelling study of the inclusion complex β-cyclodextrin/lipoic acid", *European Journal of Organic Chemistry*,Vol. 2002, No.7, pp.1191–1196.
Carper, W. R., and Nantsis, E. A., (1998), "Direct Determination of 15 N- and 19F-NMR Correlation Times from Spin-Lattice and Spin-Spin Relaxation Times", *Journal of Physical Chemistry A*, Vol.102, No.5, pp.812–815.
Carr, H. Y., and Purcell, E. M., (1954), "Effects of Diffusion on Free Precession in Nuclear Magnetic Resonance Experiments", *Phys. Rev.*, Vol.94, No.3, pp.630–638.

Castelli, D. D., Terreno, E., Longo, D., and Aime, S., (2013), "Nanoparticle-based chemical exchange saturation transfer (CEST) agents", *NMR in Biomedicine*, Vol.26, No.7, pp.839–849.

Ceborska, M., Zimnicka, M., Pietrzak, M., Troć, A., Koźbiał, M., and Lipkowski, J., (2012), "Structural diversity in native cyclodextrins/folic acid complexes - From [2]-rotaxane to exclusion compound", *Organic and Biomolecular Chemistry*, Vol.10, No.27, pp.5186–5188.

Chaisri, W., Ghassemi, A. H., Hennink, W. E., and Okonogi, S., (2011), "Enhanced gentamicin loading and release of PLGA and PLHMGA microspheres by varying the formulation parameters", *Colloids and Surfaces B: Biointerfaces*, Vol.84, No.2, pp.508–514.

Chaisri, W., Ghassemi, A. H., Hennink, W. E., and Okonogi, S., (2011), "Enhanced gentamicin loading and release of PLGA and PLHMGA microspheres by varying the formulation parameters", *Colloids and Surfaces B: Biointerfaces*, Vol.84, No.2, pp.508–514.

Chamarthy, S.P., and Pinal R., (2008), "Plasticizer concentration and the performance of a diffusion-controlled polymeric drug delivery system", *Colloids Surfaces A: Physicochemical and Engineering Aspects, Vol.* 331, pp. 25-30.

Chen, C., Liu, J., Liu, P., and Yu, B., (2011), "Investigation of Photocatalytic Degradation of Methyl Orange by Using Nano-Sized ZnO Catalysts", *Advances in Chemical Engineering and Science ,* Vol. 1, pp.9–14.

Chen, Z., Zhang, A., Wang, X., Zhu, J., Fan, Y., Yu, H., and Yang, Z., (2017), "The Advances of Carbon Nanotubes in Cancer Diagnostics and Therapeutics", *Hindawi Journal of Nanomaterials*, Vol.2017, pp.1-13.

Chini, M. G., Jones, C. R., Zampella, A., D'Auria, M. V., Renga, B., Fiorucci, S., Bifulco, G., (2012), "Quantitative NMR-derived interproton distances combined with quantum mechanical calculations of 13C chemical shifts in the stereochemical determination of conicasterol F, a nuclear receptor ligand from Theonella swinhoei", *Journal of Organic Chemistry*, Vol.77, No.3, pp.1489–1496.

Chistyachenko, Y. S., Dushkin, A. V., Polyakov, N. E., Khvostov, M. V., Tolstikova, T. G., Tolstikov, G. A., and Lyakhov, N. Z., (2015), "Polysaccharide arabinogalactan from larch Larix sibirica as carrier for molecules of salicylic and acetylsalicylic acid: Preparation, physicochemical and pharmacological study", *Drug Delivery*, Vol.22, No.3, pp.400–407.

Claridge T. D. W. (2009), "Introducing high resolution NMR. In High-Resolution NMR Techniques in Organic Chemistry", 2nd ed., *Tetrahedron Organic Chemistry*, Elsevier (UK), *27*, 11.

Clementi, A., Aversa, M. C., Corsaro, C., Spooren, J., Stancanelli, R., O'Connor, C., McNamara, M. and Mazzaglia, A. (2010), "Synthesis and characterization of a colloidal novel folic acid–cyclodextrin conjugate for targeted drug delivery", *Journal of Inclusion Phenomena and Macrocyclic Chemistry*, Vol. 69, pp. 321-325.

Clore, G. M., Gronenborn, A. M. (1994), "Structures of larger proteins, protein-ligand and protein-DNA complexes by multi-dimensional heteronuclear NMR", *Progress in Biophysics & Molecular Biology*, Vol. 62, 153-184.

Coelho, S. C., Rangel, M., Pereira, M. C., Coelho, M. A. N., and Ivanova, G., (2015), "Structural characterization of functionalized gold nanoparticles for drug delivery in cancer therapy: a NMR based approach", *Physical Chemistry Chemical Physics*, Vol.17, No.29, pp.18971–18979.

Coles, M., Heller, M., and Kessler, H., (2003), "NMR-based screening technologies", *Drug Discovery Today*, Vol.8, No.17, pp.803–810.

Comparini, I. B., Gaggelli, E., Marchettini, N., and Valensin, G., (1985), "Binding features of diacetylmorphine (heroin) in whole blood and in blood fractions", *Biophysical Journal*, Vol.48, No.2, pp.247–251.

Coppel, Y., Spataro, G., Collière, V., Chaudret, B., Mingotaud, C., Maisonnat, A., Kahn, M.L., (2012), "Self-Assembly of ZnO Nanoparticles – An NMR Spectroscopic Study", *European Journal of Inorganic Chemistry*, Vol. 2012, pp.2691–2699.

Coppel, Y., Spataro, G., Pagès, C., Chaudret, B., Maisonnat, A., Kahn, M.L., (2012), "Full Characterization of Colloidal Solutions of Long-Alkyl-Chain-Amine-Stabilized ZnO Nanoparticles by NMR Spectroscopy: Surface State, Equilibria, and Affinity", *Chemistry– A European Journal*,Vol. 18, pp.5384–5393.

Crucho, C. I. C., and Barros, M. T., (2015), "Formulation of functionalized PLGA polymeric nanoparticles for targeted drug delivery", *Polymer (United Kingdom)*, Vol.68, pp.41–46.

Cruz, J. R., Becker, B. A., Morris, K. F., and Larive, C. K., (2008), "NMR characterization of the host-guest inclusion complex between β-cyclodextrin and doxepin", *Magnetic Resonance in Chemistry*, Vol.46, No.9, pp.838–845.

D'Souza, S., Faraj, J., and Deluca, P., (2013), "Microsphere delivery of Risperidone as an alternative to combination therapy", *European Journal of Pharmaceutics and Biopharmaceutics*, Vol.85, No.3 PART A,

pp.631–639.
Dalvit, C., (2007), "Ligand- and substrate-based19F NMR screening: Principles and applications to drug discovery", *Progress in Nuclear Magnetic Resonance Spectroscopy*, Vol.51, No.4, pp.243–271.
Damron, J. T., Kersten, K. M., Pandey, M. K., Mroue, K. H., Yarava, J. R., Nishiyama, Y., Ramamoorthy, A., (2017), "Electrostatic Constraints Assessed by 1 H MAS NMR Illuminate Differences in Crystalline Polymorphs", *Journal of Physical Chemistry Letters*, Vol.8, No.17, pp.4253–4257.
Danel C. , Azaroual N. , Brunel A. , Lannoy D. , Vermeersch G. , Odou P. , Vaccher C. (2008), "Study of the complexation of risperidone and 9-hydroxyrisperidone with cyclodextrin hosts using affinity capillary electrophoresis and (1)H NMR spectroscopy", *Journal of Chromatography. A*, Vol. 1215, pp. 185-193.
Danhier, F., Ansorena, E., Silva, J. M., Coco, R., Le Breton, A., and Préat, V., (2012), "PLGA-based nanoparticles: An overview of biomedical applications", *Journal of Controlled Release*, Vol.161, No.2, pp.505–522.
Darestabi Farahani, T., Akbar Entezami, A., Mobedi, H., and Abtahi, M., (2005), "Degradation of Poly(D,L-lactide-co-glycolide) 50:50 Implant in Aqueous Medium", *Iranian Polymer Journal*, Vol.14, No.8, pp.753–763.
Dastbaz, N., Middleton, D. A., George, A., and Reid, D. G., (1999), "Molecular dynamics of poly(lactide-co-glycolide) controlled pharmaceutical release polymers: Preliminary solid state NMR", *Molecular Simulation*, Vol.22, No.1, pp.51–55.
Del Valle, E.M.M., (2004), "Cyclodextrins and their uses: a review", *Process Biochemistry*., Vol. 39, pp.1033–1046.
Demarco, P. V., Thakkar, A. L., (1970), "Cyclohepta-amylose inclusion complexes. A proton magnetic resonance study", *Journal of Chemical Society, Chemical Communications*, Vol. 1, pp.2-4.
Deng, X., Sorescu, D. C., and Lee, J., (2017), "Enhanced adsorption of CO 2 at steps of ultrathin ZnO : the importance of ZnO geometry and coordination", *Physical Chemistry Chemical Physics*, Vol.19, pp.5296–5303.
Dickinson, W. C., (1950), "Dependence of the Nuclear Resonance Position on Chemical Compound", *Phys. Rev*., Vol.77, No.5, pp.736–737.
Diercks, T., Coles, M. and Kessler, H., (2001), "Applications of NMR in drug discovery", *Current Opinion in Chemical Biology*, Vol.5, pp.285–291.
Dodziuk, H., (2006), "Cyclodextrins and Their Complexes Chemistry, Analytical Methods, Applications", *Wiley-vch Verlag GmbH & Co. KGaA, Weinheim*.
Du, L., Dushkin, A. V., Chistyachenko, Y. S., Polyakov, N. E., and Su, W., (2016), "Investigation the inclusion complexes of valsartan with polysaccharide arabinogalactan from larch Larix sibirica and (2-hydroxypropyl)-β-cyclodextrin: preparation, characterization and physicochemical properties", *Journal of Inclusion Phenomena and Macrocyclic Chemistry*, Vol.85, No.1–2, pp.93–104.
Duncan, R.,(2006), "Polymer conjugates as anticancer nanomedicines", *Nature Review Cancer*, Vol. 6, No. 9, pp. 688– 701.
Dushkin, A. V., Chistyachenko, Y. S., Tolstikova, T. G., Khvostov, M. V., Polyakov, N. E., Lyakhov, N. Z., and Tolstikov, G. A., (2013), "Pharmacological and physicochemical properties of mechanochemically synthesized supramolecular complexes of acetylsalicylic acid and polysaccharide arabinogalactan from lrches Larix sibirica and Larix gmelinii", *Doklady Biochemistry and Biophysics*, Vol. 451, No.1, pp.180–182.
Dutta, R., (2007), "Drug Carriers in Pharmaceutical Design: Promises and Progress", *Current Pharmaceutical Design*, Vol.13, No.7, pp.761–769.
Dutta, S., and Ganguly, B. N., (2012), "Characterization of ZnO nanoparticles grown in presence of Folic acid template", *Journal of Nanobiotechnology,* Vol. 10, No. 29, pp.2–11.
Ernst, R. R., and Anderson, W. A. (1966), "Application of Fourier Transform Spectroscopy to Magnetic Resonance", *Review of Scientific Instruments*, Vol. 37, pp.93–102.
Farrar, T. C., and Becker, E. D., (1971), "Chapter 4 - Relaxation Mechanisms",In T. C. FARRAR & E. D. BECKER (Eds.), *Pulse and Fourier Transform NMR* (pp. 46–65). San Diego: Academic Press.
Fejzo, J., Lepre, C. A., Peng, J. W., Bemis, G. W., Ajay, Murcko, M. A., and Moore, J. M., (1999), "The SHAPES strategy: An NMR-based approach for lead generation in drug discovery", *Chemistry and Biology*, Vol.6, No.10, pp.755–769.
Fernandes, C. M., Carvalho, R. A., Pereira da Costa, S., and Veiga, F. J. B., (2003), "Multimodal molecular encapsulation of nicardipine hydrochloride by β-cyclodextrin, hydroxypropyl-β-cyclodextrin and triacetyl-β-cyclodextrin in solution. Structural studies by 1H NMR and ROESY experiments", *European Journal of Pharmaceutical Sciences*, Vol.18, No.5, pp.285–296.
Fernandes, S. A., Cabeça, L. F., Marsaioli, A. J., and De Paula, E., (2007), "Investigation of tetracaine

complexation with beta-cyclodextrins and p-sulphonic acid calix[6]arenes by nOe and PGSE NMR", *Journal of Inclusion Phenomena and Macrocyclic Chemistry*, Vol. 57, No. 1–4, pp.395–401.

Fielding, L., (2000), "Determination of Association Constants (K_A) from Solution NMR Data", *Tetrahedron*, Vol. 56, No. 34, pp. 6151-6170.

Floare, C. G., Pirnau, A., and Bogdan, M., (2013), "1H NMR spectroscopic characterization of inclusion complexes of tolfenamic and flufenamic acids with β-cyclodextrin", *Journal of Molecular Structure*, Vol. 1044, pp.72–78.

Fraceto, L.F., Moraes, C.M., Abrami, P., Gonçalves, M.M., Andreo Filho, N., Fernandes, S.A., and de Paula, E. (2007), "Preparation and physical-chemical characterization of inclusion complexes between local anesthetics and hydroxipropyl-beta-carotene, cyclodextrin", *Quimica Nova*, Vol. 30, pp. 777-784.

Freeman, R, and Anderson, W. A., (1962), "Use of Weak Perturbing Radio-Frequency Fields in Nuclear Magnetic Double Resonance", *The Journal of Chemical Physics*, Vol.37, No.9, pp.2053–2073.

Freeman, Ray, Hill, H. D. W., Tomlinson, B. L., and Hall, L. D., (1974), "Dipolar contribution to NMR spin-lattice relaxation of protons", *The Journal of Chemical Physics*, Vol.61, No.11, pp.4466–4473.

Freiberg, S., and Zhu, X. X., (2004), "Polymer microspheres for controlled drug release", *International Journal of Pharmaceutics*, Vol. 282, No. 1–2, pp. 1–18.

Fronza, G., Mele, A., Redenti, E., and Ventura, P., (1992), "Proton nuclear magnetic resonance spectroscopy studies of the inclusion complex of piroxicam with β-cyclodextrin", *Journal of Pharmaceutical Sciences*, Vol.81, No.12, pp.1162–1165.

Fu, K., Griebenow, K., Hsieh, L., Klibanov, A. M., and Langer, R., (1999), "FTIR characterization of the secondary structure of proteins encapsulated within PLGA microspheres", *Journal of Controlled Release*, Vol.58, No.3, pp.357–366.

Fung, B. M., Khitrin, A. K., and Ermolaev, K. (2000), "An Improved Broadband Decoupling Sequence for Liquid Crystals and Solids. *J. Magn. Reson*., Vol.142(1), pp.97–101.

Gafni, A., Cohen, Y., Kataky, R., Palmer, S., and Parker, D., (1998), "Enantiomer discrimination using lipophilic cyclodextrins studied by electrode response, pulsed-gradient spin-echo (PGSE) NMR and relaxation rate measurements", *Journal of the Chemical Society, Perkin Transactions 2*, No.1, pp.19–24.

Galbán, C. J., and Spencer, R. G., (2007), "Measurement of spin-lattice relaxation times and chemical exchange rates in multiple-site systems using progressive saturation", *Magnetic Resonance in Medicine*, Vol.58, No.1, pp.8–18.

Garg, A., Gupta, B., Prakash, R., and Singh, S., (2010), "Preparation and Characterization of Hydroxypropyl-β-Cyclodextrin Inclusion Complex of Eugenol: Differential Pulse Voltammetry and 1H-NMR", *Chemical & Pharmaceutical Bulletin*, Vol.58, No.10, pp.1313–1319.

Gasmi, H., Willart, J. F., Danede, F., Hamoudi, M. C., Siepmann, J., and Siepmann, F., (2015), "Importance of PLGA microparticle swelling for the control of prilocaine release", *Journal of Drug Delivery Science and Technology*, Vol.30, pp.123–132.

Gerig, J.T., (1989), "Fluorine nuclear magnetic resonance of fluorinated ligands", *Methods Enzymol.* Vol. 177, pp.3–23.

Ghosh P., Han, G., De, M., Kim, C., and Rotello, V., (2008), "Gold nanoparticles in delivery applications," *Advanced Drug Delivery Reviews*, Vol. 60, No. 11, pp. 1307–1315.

Goldman, M., (1970), "*Spin temperature and nuclear magnetic resonance in solids*". Clarendon Press.

Gopinathan, N., Yang, B., Lowe, J. P., Edler, K. J., and Rigby, S. P., (2014), "NMR cryoporometry characterisation studies of the relation between drug release profile and pore structural evolution of polymeric nanoparticles", *International Journal of Pharmaceutics*, Vol.469, No.1, pp.146–158.

Gosselin, M.A., Guo, W.J., and Lee, R.J., (2001), "Efficient gene transfer using reversibly cross-linked low molecular weight polyethylenimine", *Bioconjugate Chemistry*, Vol. 12, No. 6, pp. 989–94.

Gould, S., and Scott, R. C., (2005), "2-Hydroxypropyl-β-cyclodextrin (HP-β-CD): A toxicology review", *Food and Chemical Toxicology*, Vol.43, No.10, pp.1451–1459.

Grace R.C.R., and Kumar A. (1995), "Observation of cross correlations in a weakly coupled 19F-1H four spin system", *J. Magn. Reson. A*, Vol.115, pp.87-93.

Griffith, L. G., (2000), "Polymeric biomaterials", *Acta Mater*, Vol. 48, pp. 263–277.

Griffiths, P., and Stilbs, P., (2002), "NMR self-diffusion studies of polymeric surfactants" *Current Opinion in Colloid and Interface Science*, Vol. 7, pp. 249-52.

Grillo, R., Melo, N.F.S., Moraes, C.M., Rosa, A.H., Royeda, J.A.F., Menezes, C.M.S., Ferreira, E. I., and Fraceto, L.F., (2007), "Hydroxymethylnitrofurazone:dimethyl-cyclodextrin inclusion complex: A physical–chemistry characterization", *Journal of Biological Physics*, Vol. 33, No.5-6, pp. 445-453.

Guilbard, J.-B., Baker, H., Clark, B. C., Meehan, E., and Khimyak, Y. Z., (2010), "Effect of Encapsulating

Arginine Containing Molecules on PLGA: A Solid-State NMR Study", *Journal Of Pharmaceutical Sciences*, Vol.99, No.6, pp.2697–2710.
Guimarães, P. P. G., Oliveira, S. R., De Castro Rodrigues, G., Gontijo, S. M. L., Lula, I. S., Cortés, M. E., Sinisterra, R. D., (2015), "Development of sulfadiazine-decorated PLGA nanoparticles loaded with 5-fluorouracil and cell viability", *Molecules*, Vol.20, No.1, pp.879–899.
Gullion, T., & Schaefer, J. (1989), "Rotational-echo double-resonance NMR", *J. Magn. Reson* Journal of Magnetic Resonance (1969), 81(1), pp196–200.
Guo, C., Holland, G.P., Yarger, J.L., (2016), "Lysine-Capped Silica Nanoparticles: A Solid-State NMR Spectroscopy Study", *MRS Advances*, Vol. 1, pp. 2261–2266.
Guo, D., Wu, C., Jiang, H., Li, Q., Wang, X., Chen, B., (2008), "Synergistic cytotoxic effect of different sized ZnO nanoparticles and daunorubicin against leukemia cancer cells under UV irradiation", *Journal of Photochemistry and Photobiology B: Biology* Vol. 93, pp.119–126.
Gutowsky, H. S., and Saika, A., (1953), "Dissociation, Chemical Exchange, and the Proton Magnetic Resonance in Some Aqueous Electrolytes", *The Journal of Chemical Physics*, Vol.21, No.10, pp.1688–1694.
Hahn, E. L., (1950), "Spin Echoes", *Phys. Rev.*, Vol.80, No.4, pp.580–594.
Halbeek, H. V., and Poppe, L., (1992), "Conformation and Dynamics of Glycoprotein Oligosaccharides as Studied by 1H NMR Spectroscopy", *Magnetic Resonance Chemistry,* Vol. 30, pp. S74–S86.
Hall, L. D., and Hill, H. D. W., (1976), "Spin-lattice relaxation of protons. A general, quantitative evaluation of contributions from the intramolecular dipole-dipole mechanism", *Journal of the American Chemical Society*, Vol.98, No.5, pp.1269–1270.
Hall, L. D., Hill, H. D. W., (1976), "Spin-lattice relaxation of protons. A general, quantitative evaluation of contributions from the intramolecular dipole-dipole mechanism", *Journal of the American Chemical Society,* Vol. 98, pp.1269-1270.
Hariharan, R., Senthilkumar, S., Suganthi, A., Rajarajan, M., (2013), "Synthesis and characterization of daunorubicin modified ZnO/PVP nanorods and its photodynamic action", *Journal of Photochemistry and Photobiology A: Chemistry*, Vol. 252, pp.107–115.
Harris, R. K., Hodgkinson, P., Larsson, T., and Muruganantham, A., (2005), "Quantification of bambuterol hydrochloride in a formulated product using solid-state NMR", Journal of Pharmaceutical and Biomedical Analysis, Vol.38, No.5 SPEC. ISS., pp.858–864.
Hartmann, S. R., and Hahn, E. L., (1962), "Nuclear Double Resonance in the Rotating Frame", *Phys. Rev.*, Vol.128, No.5, pp.2042–2053.
Heredia, K. L., and Maynard, H.D., (2007), "Synthesis of protein-polymer conjugates", *Organic & Biomolecular Chemistry*, Vol. 5, No. 1, pp. 45–53.
Hines, D. J., and Kaplan, D. L., (2013), "Poly(lactic-co-glycolic) acid-controlled-release systems: experimental and modeling insights.", *Critical Reviews in Therapeutic Drug Carrier Systems*, Vol.30, No.3, pp.257–76.
Hirayama, F., Uekama, K., (1999), "Cyclodextrin-based controlled drug release system", *Advanced Drug Delivery Review*, Vol. 36, pp. 125- 141.
Hoffman, R. A., and Forsen, S. (1966), "High-Resolution Nuclear Magnetic Double and Multiple Resonance," in *Progress in Nuclear Magnetic Resonance Spectroscopy*, J. W. Emsley, J. Feeney, and L. H. Sutcliffe, Eds. (Pergamon Press, Inc., New York), Vol. 1, pp.15–205.
Holland, G. P., Sharma, R., Agola, J. O., Amin, S., Solomon, V. C., Singh, P., and Yarger, J. L., (2007), "NMR characterization of phosphonic acid capped SnO2 nanoparticles", *Chemistry of Materials*, Vol.19, No.10, pp.2519–2526.
Holzgrabe, U., Deubner, R., Schollmayer, C., and Waibel, B., (2005), "Quantitative NMR spectroscopy - Applications in drug analysis", *Journal of Pharmaceutical and Biomedical Analysis*, Vol.38, No.5 SPEC. ISS., pp.806–812.
Huang, Y., Sutrisno, A., (2014), "Recent Advances in Solid-State 67Zn NMR Studies: From Nanoparticles to Biological Systems", *Annual Reports on NMR Spectroscopy*, Vol. 81, pp.1–46.
Hull, W. E., Port, R. E., Herrmann, R., Britsch, B., and Kunz, W., (1988), "Metabolites of 5-Fluorouracil in Plasma and Urine , as Monitored by 19 F Nuclear Magnetic Resonance Spectroscopy , for Patients Receiving Chemotherapy with or without Methotrexate Pretreatment", *Cancer Research*, Vol.48, pp.1680–1688.
Husain, S., Alkhtaby, L. A., Giorgetti, E., Zoppi, A., and Muniz, M., (2014), "Effect of Mn doping on structural and optical properties of sol gel derived ZnO nanoparticles", *Journal of Luminescence*, Vol.145, pp.132–137.
Hwang, T. L., Mori, S., Shaka, A. J., and Van Zijl, P. C. M., (1997), "Application of phase-modulated CLEAN chemical EXchange spectroscopy (CLEANEX-PM) to detect water - Protein proton exchange

and intermolecular NOEs", *Journal of the American Chemical Society*, Vol.119, No.26, pp.6203–6204.
Indubala, E., Dhanasekar, M., Sudha, V., Malar, E. J. P., Divya, P., Sherine, J., and Harinipriya, S., (2018), "L-Alanine capping of ZnO nanorods: Increased carrier concentration in ZnO/CuI heterojunction diode", *RSC Advances*, Vol.8, No.10, pp.5350–5361.
Inoue, Y., (1993), "NMR Studies of the Structure and Properties of Cyclodextrins and Their Inclusion Complexes", *Annual Reports on NMR Spectroscopy*, Vol. 27, pp. 59-101.
Irie, T., and Uekama, K. (1997), "Pharmaceutical applications of cyclodextrins. III. Toxicological issues and safety evaluation", *Journal of Pharmaceutical Sciences*, Vol. 86, pp.147–162.
Jahed, V., Zarrabi, A., Bordbar, A. K., and Hafezi, M. S., (2014), "NMR (1H, ROESY) spectroscopic and molecular modelling investigations of supramolecular complex of β-cyclodextrin and curcumin", *Food Chemistry*, Vol.165, pp.241–246.
Jahnke, W., Florsheimer, A., Blommers, M., Paris, C., Heim, J., Nalin, C., and Perez, L., (2005), "Second-Site NMR Screening and Linker Design", *Current Topics in Medicinal Chemistry*, Vol.3, No.1, pp.69–80.
Jain, R. A., (2000), "The manufacturing techniques of various drug loaded biodegradable poly(lactide-co-glycolide) (PLGA) devices", *Biomaterials*, Vol.21, No.23, pp.2475–2490.
Jeener, J. (1971), "Oral Presentation" in *Ampere International Summer School II*, Basko Polje, Yugoslavia.
Jeener, J., Meier, B. H., Bachmann, P., and Ernst, R. R., (1979), "Investigation of exchange processes by two-dimensional NMR spectroscopy", *The Journal of Chemical Physics*, Vol.71, No.11, pp.4546–4553.
Jimenez, V., Alderete, J. B., (2008), "Hartree-Fock and density functional theory study of α-cyclodextrin conformers", *Journal of Physical Chemistry A*, Vol. 112, pp. 678-685.
Job, P., (1928), "Formation and stability of inorganic complexes in solution", *Annales de Chimie,* Vol. 9, pp.113–203.
Johnson, C.S., (1999), "Diffusion ordered nuclear magnetic resonance spectroscopy: Principles and applications", *Progress in Nuclear Magnetic Resonance Spectroscopy*, Vol. 34, pp. 203–256.
José, F., Eiga, B. V, Ernandes, M. F., Arvalho, A. C., Frederico, C., Campos, G., and Eraldes, G. C., (2001), "Molecular modelling and 1H-NMR : ultimate tools for the investigation of tolbutamide : β-cyclodextrin and tolbutamide : hydroxypropyl-β-cyclodextrin complexes", *Chemical & Pharmaceutical Bulletin*, Vol.49, No.October, pp.1251–6.
Juárez-Pérez, E. J., Mutin, P. H., Granier, M., Teixidor, F., and Núñez, R., (2010), "Anchoring of phosphorus-containing cobaltabisdicarbollide derivatives to titania surface", *Langmuir*, Vol.26, No.14, pp.12185–12189.
Kamei, N., Morishita, M., Chiba, H., Kavimandan, N.J., Peppas, N.A., Takayama, K., (2009), "Complexation hydrogels for intestinal delivery of interferon β and calcitonin" *Journal of Controlled Release*, Vol. 134, No. 2, pp. 98–102.
Kang, B. K., Chon, S. K., Kim, S. H., Jeong, S. Y., Kim, M. S., Cho, S. H., and Khang, G., (2004), "Controlled release of paclitaxel from microemulsion containing PLGA and evaluation of anti-tumor activity in vitro and in vivo", *International Journal of Pharmaceutics*, Vol.286, No.1–2, pp.147–156.
Keeler, J. (2010), "Understanding NMR Spectroscopy", *John Wiley & Sons*, Vol. 14.
Kessler, H., Heller, M., Gemmecker, G., Diercks, T., Planker, E., and Coles, M., (2003), "NMR in Medicinal Chemistry", In: Waldmann H., Koppitz M. (eds.) Small Molecule-Protein Interactions", *Ernst Schering Research Foundation Workshop, Springer, Berlin, Heidelberg,* Vol. 42. pp.59–85.
Kessler, H., Oschkinat, H., Griesinger, C., and Bermel, W., (1986), "Transformation of homonuclear two-dimensional NMR techniques into one-dimensional techniques using Gaussian pulses", *Journal of Magnetic Resonance*, Vol. 70, No.1, pp.106–133.
Khan, Z. R., Khan, M. S., Zulfequar, M., and Shahid Khan, M., (2011), "Optical and Structural Properties of ZnO Thin Films Fabricated by Sol-Gel Method", *Materials Sciences and Applications*, Vol.02, No.05, pp.340–345.
Khemtong, C., Kessinger, C. W., and Gao, J., (2009), "Polymeric nanomedicine for cancer MR imaging and drug delivery", *Chemical Communications*, Vol.7345, No.24, pp.3497–3510.
Kim, K.S., and Park, S,J., (2010), "Characterization and release behaviors of porous PCL/Eudragit RS microcapsules containing tulobuterol", *Colloids and Surfaces B: Biointerfaces*, Vol. 76, pp. 404-9.
Kishwar, S., Asif, M. H., Nur, O., Willander, M., and Larsson, P-O., (2010), "Intracellular ZnO Nanorods Conjugated with Protoporphyrin for Local Mediated Photochemistry and Efficient Treatment of Single Cancer Cell", *Nanoscale Research Letters* Vol. 5, pp.1669.
Kobayashi, T., Mao, K., Paluch, P., Nowak-Król, A., Sniechowska, J., Nishiyama, Y., Pruski, M., (2013), "Study of Intermolecular Interactions in the Corrole Matrix by Solid-State NMR under 100 kHz MAS and Theoretical Calculations", *Angewandte Chemie*, Vol.125, No.52, pp.14358–14361.
Kong, F. Y., Zhang, J. W., Li, R. F., Wang, Z. X., Wang, W. J., and Wang, W., (2017), "Unique roles of gold

nanoparticles in drug delivery, targeting and imaging applications," *Molecules*, Vol. 22, No. 9, pp. 1445.

Konstantin, I., (2003), "Pulsed field gradient NMR as a tool for studying drug delivery systems", *Concepts In Magnetic Resonance A*, Vol. 19A, No. 2, pp.51–64.

Krems, B., Bachert, P., Zabel, H. J., and Lorenz, W. J., (1995), "19F-(1H) Nuclear Overhauser Effect and Proton Decoupling of 5-Fluorouracil and α-Fluoro-β-Alanine", *Journal of Magnetic Resonance, Series B*, Vol.108, No.2, pp.155–164.

Kumar, A., Christy Rani Grace, R., and Madhu, P. K., (2000), "Cross-correlations in NMR", *Progress in Nuclear Magnetic Resonance Spectroscopy*, Vol.37, No.3, pp.191–319.

Kumar, A., Ernst, R. R., and Wüthrich, K., (1980), "A two-dimensional nuclear Overhauser enhancement (2D NOE) experiment for the elucidation of complete proton-proton cross-relaxation networks in biological macromolecules", *Biochemical and Biophysical Research Communications*, Vol.95, No.1, pp.1–6.

Kumar, D., Krishnan, Y., Paranjothy, M., and Pal, S., (2017), "Analysis of Molecular Interaction of Drugs within β-Cyclodextrin Cavity by Solution-State NMR Relaxation", *Journal of Physical Chemistry B*, Vol.121, No.13, pp.2864–2872.

Kupce, E., and Freeman, R., (1993), "Multisite Correlation Spectroscopy with Soft Pulses. A New Phase-Encoding Scheme", *Journal of Magnetic Resonance, Series A*, Vol.105, No.3, pp.310–315.

Kurkov, S. V., and Loftsson, T., (2013)," Cyclodextrins", *International Journal of Pharmaceutical Research*, Vol. 453, pp.167–180.

Kwak, S., and Lafleur, M., (2003), "NMR self-diffusion of molecular and macromolecular species in dextran solutions and gels", *Macromolecules,* Vol. 36, pp. 3189-95.

Laine, R. M.; Thomas, D. W.; Cary, L. W.; Buttrill, S. E., **(1980),** "Correlation time measurements of amino acid side chains from ^{1}H selective spin-lattice relaxation rates", *J. Am. Chem. Soc.*, Vol. *100,* pp.6528–6529.

Lambert, J.B.; Mazzola, E. P.; Ridge, C. D., (2004), "Nuclear Magnetic Resonance Spectroscopy: an introduction to principles, applications, and experimental methods", *Pearson/Prentice Hall*, *ISBN 9780130890665*, Upper Saddle River, USA.

LaPlante, S. R., Carson, R., Gillard, J., Aubry, N., Coulombe, R., Bordeleau, S., and Beaulieu, P. L., (2013), "Compound aggregation in drug discovery: implementing a practical NMR assay for medicinal chemists.", *Journal of Medicinal Chemistry*, Vol.56, No.12, pp.5142–50.

Laquintana, V., Denora, N., Lopalco, A., Lopedota, A., Cutrignelli, A., Lasorsa, F. M., and Aldo, B., (2014), "Translocator Protein Ligand − PLGA Conjugated Nanoparticles for 5 ‐ Fluorouracil Delivery to Glioma Cancer Cells", *Mol. Pharmaceutics,* Vol., 11, No. 3, 859-871.

Lay, C. L., Liu, J., and Liu, Y., (2011), "Functionalized carbon nanotubes for anticancer drug delivery," *Expert Review of Medical Devices*, Vol. 8, No. 5, pp. 561–566.

Led, J. J., and Gesmar, H., (1982), "The applicability of the magnetization-transfer NMR technique to determine chemical exchange rates in extreme cases. The importance of complementary experiments", *Journal of Magnetic Resonance (1969)*, Vol.49, No.3, pp.444–463.

Lee, H., and Ooya, T., (2012), "19F-NMR, 1H-NMR, and fluorescence studies of interaction between 5-fluorouracil and polyglycerol dendrimers", *Journal of Physical Chemistry B*, Vol.116, No.40, pp.12263–12267.

Lee, Y. S., Lowe, J. P., Gilby, E., Perera, S., and Rigby, S. P., (2010), "The initial release of cisplatin from poly(lactide-co-glycolide) microspheres", *International Journal of Pharmaceutics*, Vol.383, No.1–2, pp.244–254.

Li, L., Zhang, X., Zhang, W., Wang, L., Chen, X., and Gao, Y., (2014), "Microwave-assisted synthesis of nanocomposite Ag/ZnO-TiO 2 and photocatalytic degradation Rhodamine B with different modes", *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, Vol.457, No.1, pp.134–141.

Li, S., and Purdy, W. C., (1992), "Cyclodextrins and Their Applications in Analytical Chemistry", *Chemical Reviews*, Vol.92, No.6, pp.1457–1470.

Li, X., Xu, Y., Chen, G., Wei, P., and Ping, Q. N., (2008), "PLGA nanoparticles for the oral delivery of 5-fluorouracil using high pressure homogenization-emulsification as the preparation method and in vitro/in vivo studies", *Drug Development and Industrial Pharmacy*, Vol.34, No.1, pp.107–115.

Li, Y., and Kang, C., (2017), "Solution NMR spectroscopy in target-based drug discovery", *Molecules*, Vol.22, No.9, pp. 1399.

Li, Y., Yin, G., Wei, W., Wang, H., Jiang, S.; Zhu, D., and Du, W. (2007), "Interactions of lycopodium alkaloids with acetylcholinesterase investigated by ^{1}H NMR relaxation rate", *Biophysical Chem*istry, Vol. 129, pp.212–217.

Liechty, W. B., (2010), "Polymer for Drug Delivery", *Annual Review of Chemical and Biomolecular*

Engineering, Vol. 1 , pp.149–173.
Lin, X., Wang, J., Xu, Y., Tang, X., Chen, J., Zhang, Y., and Yang, Z., (2016), "Tracking the effect of microspheres size on the drug release from a microsphere/sucrose acetate isobutyrate (SAIB) hybrid depot in vitro and in vivo", *Drug Development and Industrial Pharmacy*, Vol.42, No.9, pp.1455–1465.
Lipkowitz, K.B., (1998), "Applications of computational chemistry to the study of cyclodextrins", *Chemical Reveiw*, Vol. 98, pp.1829-1873.
Liu, C. W., and Lin, W. J., (2012), "Polymeric nanoparticles conjugate a novel heptapeptide as an epidermal growth factor receptor-active targeting ligand for doxorubicin", *International Journal of Nanomedicine*, Vol.7, pp.4749–4767.
Liu, Y., Shi, J., and Guo, D. S., (2007), "Novel permethylated β-cyclodextrin derivatives appended with chromophores as efficient fluorescent sensors for the molecular recognition of bile salts", *Journal of Organic Chemistry*, Vol.72, No.22, pp.8227–8234.
Loftson, T., (2002), "Cyclodextrins and the bio pharmaceutics classification system of drugs", *J Incl Phenom Macrocycl Chem*., Vol. 44, pp.63- 67.
Loftsson, T., and Brewster, M.E. (2011), "Pharmaceutical applications of cyclodextrins: effects on drug permeation through biological membranes", *Journal of Pharmacy and Pharmacology* , Vol. 63, pp. 1119–1135.
Loftsson, T., Jarvinen, T., (1999), "Cyclodextrins in ophthalmic drug delivery" *Advanced Drug Delivery Reviews*, Vol. 36, pp. 59–79.
Loftsson, T., Saokham, P., and Sá Couto, A. R., (2019), "Self-association of cyclodextrins and cyclodextrin complexes in aqueous solutions", *International Journal of Pharmaceutics*, Vol.560, No.5, pp.228–234.
Louiz, S., Labiadh, H., and Abderrahim, R., (2015), "Synthesis and spectroscopy studies of the inclusion complex of 3-amino-5-methyl pyrazole with beta-cyclodextrin", *Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy*, Vol.134, pp.276–282.
Loukas, Y. L., (1997), "Evaluation of the methods for the determination of the stability constant of cyclodextrin-chlorambucil inclusion complexes", *Journal of Pharmaceutical and Biomedical Analysis*, Vol.16, No.2, pp.275–280.
Lowe, I. J., (1959), "Free Induction Decays of Rotating Solids", *Phys. Rev. Lett.*, Vol.2, No.7, pp.285–287.
Lu, J.-M., Wang, X., Marin-Muller, C., Wang, H., Lin, P. H., Yao, Q., and Chen, C., (2009), "Current advances in research and clinical applications of PLGA-based nanotechnology", *Expert Rev Mol Daign*, Vol.9, No.4, pp.325–341.
Lu, P. J., Huang, S. C., Chen, Y. P., Chiueh, L. C., and Shih, D. Y. C., (2015), "Analysis of titanium dioxide and zinc oxide nanoparticles in cosmetics", *Journal of Food and Drug Analysis*, Vol.23, No.3, pp.587–594.
Lucas, L. H., Otto, W. H., and Larive, C. K., (2002), "The 2D-J-DOSY Experiment: Resolving Diffusion Coefficients in Mixtures", *Journal of Magnetic Resonance*, Vol.156, No.1, pp.138–145.
Mackor, E. L., and Maclean, C., (1966), "Sign of JHF in CHFCl2", *The Journal of Chemical Physics*, Vol.44, No.1, pp.64–69.
Madaan, K., Kumar, S., Poonia, N., Lather, V. and Pandita, D., (2014), "Dendrimers in Drug Delivery and Targeting: Drug-Dendrimer Interactions and Toxicity Issues", *Journal of Pharmacy and Bioallied Sciences*, Vol. 6, pp. 139-150.
Magnusdottir, A., Másson, M., Loftsson, T., Saokham, P., Sá Couto, A. R., Másson, M., and Loftsson, T., (2002), "Examination of 19F-NMR as a tool for investigation of drug-cyelodextrin complexes", *Journal of Inclusion Phenomena*, Vol.29, No.1–4, pp.107–112.
Majhi, K., Khatun, R., Jana, S., Hajra, A., Shukla, A., Maiti, P., and Sinha, S., (2018), "Synthesis and characterization of host–guest inclusion complex of m-cresol with β-cyclodextrin", *Journal of Inclusion Phenomena and Macrocyclic Chemistry*, Vol.90, No.1–2, pp.61–73.
Makadia, H. K., and Siegel, S. J., (2011), "Poly Lactic-co-Glycolic Acid (PLGA) as biodegradable controlled drug delivery carrier", *Polymers*, Vol.3, No.3, pp.1377–1397.
Malanga, M., Szemán, J., Fenyvesi, É., Puskás, I., Csabai, K., Gyémánt, G., and Szente, L., (2016), ""Back to the Future": A New Look at Hydroxypropyl Beta-Cyclodextrins", *Journal of Pharmaceutical Sciences*, Vol.105, No.9, pp.2921–2931.
Malet-Martino, M., and Holzgrabe, U., (2011), "NMR techniques in biomedical and pharmaceutical analysis", *Journal of Pharmaceutical and Biomedical Analysis*, Vol.55, No.1, pp.1–15.
Mann, B. E., (1976), "The application of the forsén-hoffman method of measuring rates of exchange to the 13C NMR spectrum of cis-decalin", *Journal of Magnetic Resonance (1969)*, Vol.21, No.1, pp.17–23.
Mantle, M. D., (2013), "NMR and MRI studies of drug delivery systems", *Curr. Opin. Colloid Interface Sci.*, Vol. 18, pp.214–227.

Mao, K., Wiench, J. W., Lin, V. S.-Y., and Pruski, M., (2009), "Indirectly detected through-bond chemical shift correlation NMR spectroscopy in solids under fast MAS: Studies of organic–inorganic hybrid materials", *Journal of Magnetic Resonance*, Vol.196, No.1, pp.92–95.

Marbella, L. E., and Millstone, J. E., (2015), "NMR techniques for noble metal nanoparticles", *Chemistry of Materials*, Vol.27, No.8, pp.2721–2739.

Marchetti, A., Jehle, S., Felletti, M., Knight, M. J., Wang, Y., Xu, Z. Q., Pintacuda, G., (2012), "Backbone assignment of fully protonated solid proteins by 1H detection and ultrafast magic-angle-spinning NMR spectroscopy", *Angewandte Chemie - International Edition*, Vol.51, No.43, pp.10756–10759.

Marquardt, D. W., (1963), "An algorithm for least-squares estimation of nonlinear parameters", *SIAM J Appl Math*., Vol. 11, pp. 431-441.

Masloub, S. M., Elmalahy, M. H., Sabry, D., Mohamed, W. S., and Ahmed, S. H., (2016), "Comparative evaluation of PLGA nanoparticle delivery system for 5-fluorouracil and curcumin on squamous cell carcinoma", *Archives of Oral Biology*, Vol.64, pp.1–10.

Masloub, S. M., Elmalahy, M. H., Sabry, D., Mohamed, W. S., and Ahmed, S. H., (2016), "Comparative evaluation of PLGA nanoparticle delivery system for 5-fluorouracil and curcumin on squamous cell carcinoma", *Archives of Oral Biology*, Vol.64, pp.1–10.

Másson, M., Sigurjónsdóttir, J. F., Jónsdóttir, S., and Loftsson, T., (2003), "Examination of 19F-NMR as a tool for investigation of drug-cyelodextrin complexes", *Drug Development and Industrial Pharmacy*, Vol.29, No.1, pp.107–112.

Mathias, E. V., Aponte, J., Kornfield, J. A., and Ba, Y., (2010), "Properties of small molecular drug loading and diffusion in a fluorinated PEG hydrogel studied by 1H molecular diffusion NMR and 19F spin diffusion NMR", *Colloid and Polymer Science*, Vol.288, No.18, pp.1655–1663.

Matsuda, H., and Arima, H., (1999), "Cyclodextrins in transdermal and rectal delivery", *Advanced Drug Delivery Reviews*, Vol. 36, pp. 80–99.

Matsui, T., Iwasaki, H., Matsumoto, K., and Osajima, Y., (1994), "NNMR studies of cyclodextrin inclusion complex with ethyl hexanoate in ethanol solution", *Bioscience, Biotechnology and Biochemistry*, Vol.58, No.6, pp.1102–1106.

McCall, R. L., and Sirianni, R. W., (2013), "PLGA Nanoparticles Formed by Single- or Double-emulsion with Vitamin E-TPGS", *Journal of Visualized Experiments*, No.82, pp.1–8.

McCall, R. L., and Sirianni, R. W., (2013), "PLGA Nanoparticles Formed by Single- or Double-emulsion with Vitamin E-TPGS", *Journal of Visualized Experiments*, , No.82, pp.1–8.

McConnell, H. M., (1958), "Reaction Rates by Nuclear Magnetic Resonance", *The Journal of Chemical Physics*, Vol.28, No.3, pp.430–431.

Meiboom, S., and Gill, D., (1958), "Modified Spin-Echo Method for Measuring Nuclear Relaxation Times", *Review of Scientific Instruments*, Vol.29, No.8, pp.688–691.

Messaritaki, A., Black, S. J., Van Der Walle, C. F., and Rigby, S. P., (2005), "NMR and confocal microscopy studies of the mechanisms of burst drug release from PLGA microspheres", *Journal of Controlled Release*, Vol.108, No.2–3, pp.271–281.

Metz, G., Wu, X. L., & Smith, S. O. (1994), "Ramped-Amplitude Cross Polarization in Magic-Angle-Spinning NMR". *J. Magn. Reson. A*, Vol. 110(2), pp.219–227.

Miyauchi, M., Takashima, Y., and Yamaguchi, H., (2005), "Chiral supramolecular polymers formed by host– guest interactions", *Journal of American Chemical Society*, Vol. 127, pp. 2984-2989.

Momot, K. I., and Kuchel, P. W., (2003), "Pulsed field gradient nuclear magnetic resonance as a tool for studying drug delivery systems", *Concepts in Magnetic Resonance Part A: Bridging Education and Research*, Vol.19, No.2, pp.51–64.

Muhammad, F., Guo, M., Guo, Y., Qi, W., Qu, F., Sun, F., Zhao, H.,and Zhu G (2011), "Acid degradable ZnO quantum dots as a platform for targeted delivery of an anticancer drug", *Journal of Materials Chemistry,* Vol. 21, pp.13406.

Muhammad, F., Guo, M., Qi, W., Sun, F., Wang, A., Guo, Y., Zhu, G., (2011), "pH-Triggered Controlled Drug Release from Mesoporous Silica Nanoparticles via Intracellular Dissolution of ZnO Nanolids", *Journal of American Chemical Society*, Vol. 133, pp. 8778–8781.

Muhandiram, D. R., and McClung, R. E. D., (1987), "Multisite magnetization transfer experiments", *Journal of Magnetic Resonance (1969)*, Vol.71, No.1, pp.187–192.

Mulinacci, N., Melani, F., Mazzi, G., and Vincieri, F. F., (1993), "Molecular modelling and NMR NOE experiments: Complementary tools for the investigation of complex ibuproxam-β-cyclodextrin topology", *International Journal of Pharmaceutics*, Vol.90, No.1, pp.35–41.

Mura, P., (2014), "Analytical techniques for characterization of cyclodextrin complexes in aqueous solution: a review", *Journal of Pharmaceutical and Biomedical Analysis*, Vol.101, pp.238–50.

Nagaraju, M., and Sastry, G.N., (2009), "Theoretical studies on inclusion complexes of cyclodextrins",

Journal of Physical Chemistry A., Vol. 113,pp. 9533–9542.
Nagarwal, R.C., Kumar, R., Dhanawat, M., and Pandit, J.K. (2011) "Modified PLA nano in situ gel: a potential ophthalmic drug delivery system", *Colloids Surface B: Biointerfaces*. Vol. 86, No. 1, pp. 28-34.
Nair K, L., Jagadeeshan, S., Nair, S. A., and Kumar, G. S. V., (2011), "Biological evaluation of 5-fluorouracil nanoparticles for cancer chemotherapy and its dependence on the carrier, PLGA.", *International Journal of Nanomedicine*, Vol.6, pp.1685–1697.
Neuhaus, D., and Williamson, M., (2000), "The nuclear Overhauser effect in structural and conformation analysis", *Wiley-VHC, Inc., ISBN 0-471-24675-1,* New York, USA.
Ngowe, C. O., Bishop, K. D., and McGuffin, V. L., (2001), "Determination of association constants for weak solute-solute complexes by nuclear magnetic resonance spectroscopy", *Analytica Chimica Acta*, Vol.427, No.1, pp.137–142.
Niccolai, N.; Garsky, V.; Gibbons, W.A., **(1980)**, "Proton spin-lattice relaxation studies of [d-ala^2-met^5] encephalin", *J. Am. Chem. Soc.,* Vol. *102*, pp.1517–1520.
Nicolescu, C., Aramă, C., and Monciu, C. M., (2010), "Preparation and characterization of inclusion complexes between repaglinide and β-cyclodextrin, 2-hydroxypropyl-β-cyclodextrin and randomly methylated β-cyclodextrin", *Farmacia*, Vol.58, No.1, pp.78–88.
Occhipinti, P., and Griffiths P.C., (2008), "Quantifying diffusion in mucosal systems by pulsed-gradient spin-echo NMR", *Advanced Drug Delivery Review*, Vol. 60, pp. 1570-82.
Orfi, E., and Szebeni, J., (2016), "The immune system of the gut and potential adverse effects of oral nanocarriers on its function" *Advanced drug delivery reviews,* Vol. 106, pp. 402–409.
Overhauser, A. W., (1953), "Polarization of Nuclei in Metals", *Phys. Rev.*, Vol.92, No.2, pp.411–415.
Pal S. (2010), "NMR and NQR studies of chemical exchange: Novel one dimensional approaches", Ph.D. Thesis, Indian Institute of Technology Madras, India.
Pal, S., (2010), "Study of multi-site chemical exchange in solution state by NMR: 1D experiments with multiply selective excitation", *Journal of Chemical Sciences*, Vol.122, No.4, pp.471–480.
Pandya, A., Howard, M. J., Zloh, M., and Dalby, P. A., (2018), "An evaluation of the potential of NMR spectroscopy and computational modelling methods to inform biopharmaceutical formulations", *Pharmaceutics*, Vol.10, No.4, pp.1. – 24.
Panyam, J., and Labhasetwar, V., (2003), "Biodegradable nanoparticles for drug and gene delivery to cells and tissue", *Advanced Drug Delivery Reviews*, Vol.55, No.3, pp.329–347.
Paradossi, G., Cavalieri, F., Crescenzi, V., (1997), "H NMR relaxation study of a chitosan cyclodextrin network", *Carbohydrate Research*, Vol. 300, pp.77–84.
Parikh, R. H., Parikh, J. R., Dubey, R. R., Soni, H. N., and Kapadia, K. N., (2003), "Poly(D,L-lactide-co-glycolide) microspheres containing 5-fluorouracil: optimization of process parameters.", *AAPS Pharm. Sci Tech.*, Vol.4, No.2, pp.E13.
Parthasarathy, S., Nishiyama, Y., and Ishii, Y., (2013), "Sensitivity and Resolution Enhanced Solid-State NMR for Paramagnetic Systems and Biomolecules under Very Fast Magic Angle Spinning", *Accounts of Chemical Research*, Vol.46, No.9, pp.2127–2135.
Pasut, G., and Veronese, F.M., (2007), "Polymer-drug conjugation, recent achievements and general strategies", *Progress in Polymer Science*, Vol. 32, pp. 933–61.
Paterson, Y., Englander, S. W., and Roder, H., (1990), "Binding Antibody Site on Cytochrome c by Defined Hydrogen Exchange Two-Dimensional", *Advancement Of Science*, Vol.249, No.4970, pp.755–759.
Pellecchia, M., Bertini, I., Cowburn, D., Dalvit, C., Giralt, E., Jahnke, W.,and Siegal, G.,(2008), "Perspectives on NMR in drug discovery : a technique comes of age", *Nature Reviews Drug Discovery*, Vol. 7, pp. 738-745.
Peng, Y.K., Ye, L., Qu, J., Zhang, L., Fu, Y., Teixeira, I.F., Mc Pherson, I.J., He, H., and Tsang, S.C.E (2016), "Trimethylphosphine-Assisted Surface Fingerprinting of Metal Oxide Nanoparticle by 31P Solid-State NMR: A Zinc Oxide Case Study", *Journal of the American Chemical Society*,Vol. 138, pp.2225–2234.
Peppas, N.A., Bures, P., Leobandung, W., and Ichikawa, H., (2005),"Hydrogels in pharmaceutical formulations", *European Journal of Pharmaceutics and Biopharmaceutics*, Vol. 50, No. 1, pp. 27–46.
Perrin, C. L., and Engler, R. E., (1996), "Accurate Rate Constants for Chemical Exchange from Improved Weighted Linear-Least-Squares Analysis of Multiple 1D-EXSY Data", *Journal of Magnetic Resonance, Series A*, Vol.123, No.2, pp.188–195.
Perrin, C. L., and Gipe, R. K., (1984), "Multisite kinetics by quantitative two-dimensional NMR", *Journal of the American Chemical Society*, Vol.106, No.14, pp.4036–4038.
Perrin, C. L., and Johnston, E. R., (1979), "Saturation-transfer studies of three-site exchange kinetics", *Journal of Magnetic Resonance (1969)*, Vol.33, No.3, pp.619–626.

Pessine, F. B. T., Calderini, A., and Alexandrino, G. L., (2012), Review: Cyclodextrin Inclusion Complexes Probed by NMR Techniques, *Magnetic Resonance Spectroscopy*, Prof. Dong-Hyun Kim (Ed.), ISBN: 978-953-51-0065-2.

Pillai, O., and Panchagnula R, "Polymers in drug delivery", (2001), *Current Opinion in Chemical Biology*, Vol. 5, pp. 447–451.

Pines, A., Gibby, M. G., and Waugh, J. S., (1973), "Proton-enhanced NMR of dilute spins in solids", *The Journal of Chemical Physics*, Vol.59, No.2, pp.569–590.

Pinto, L. M. A., Fraceto, L. F., Santana, M. H. A., Pertinhez, T. A., Oyama, S., and De Paula, E., (2005), "Physico-chemical characterization of benzocaine-β-cyclodextrin inclusion complexes", *Journal of Pharmaceutical and Biomedical Analysis*, Vol.39, No.5, pp.956–963.

Pîrnău, A., Bogdan, M., and Floare, C. G., (2009), "NMR spectroscopic characterization of β-cyclodextrin inclusion complex with vanillin", *Journal of Physics: Conference Series*, Vol.182, No. 1, pp. 1-5.

Pons, M., and Millet, O., (2001), "Dynamic NMR studies of supramolecular complexes", *Progress in Nuclear Magnetic Resonance Spectroscopy*, Vol. 38, pp.267-324.

Poveda, A., Vicent, C., Penadés, S., and Jiménez-Barbero, J., (1997), "NMR experiments for the detection of NOEs and scalar coupling constants between equivalent protons in trehalose-containing molecules", *Carbohydrate Research*, Vol.301, No.1–2, pp.5–10.

Powers, R., (2009), "Advances in nuclear magnetic resonance for drug discovery", *Expert opinion on drug discovery*, Vol. 4, No. 10, pp.1077–1098.

Price, W.S., (2003) "Recent advances in NMR diffusion techniques for studying drug binding" *Australian Journal of Chemistry*, Vol. 56, No. 9, pp. 855-60.

Probst, C. E., Zrazhevskiy, P., Bagalkot, V., and Gao, X., "Quantum dots as a platform for nanoparticle drug delivery vehicle design," *Advanced Drug Delivery Reviews*, Vol. 65, No. 5, pp. 703–718, 2013.

Proctor, W. G., and Yu, F. C., (1950), "The Dependence of a Nuclear Magnetic Resonance Frequency upon Chemical Compound", *Phys. Rev.*, Vol.77, No.5, pp.717.

PS, S., and VG, J., (2013), "Preparation and Characterisation of 5-Fluorouracil Loaded Plga Nanoparticles for Colorectal Cancer Therapy", *Unique Journal of Pharmaceutical and Biological Sciences*, Vol.01, No.02, pp.52–58.

Purcell, E. M., Torrey, H. C., and Pound, R. V, (1946), "Resonance Absorption by Nuclear Magnetic Moments in a Solid", *Phys. Rev.*, Vol.69, No.1–2, pp.37–38.

Radi, A.E., and Eissa, S., (2010), "Voltammetric and spectrophotometric study on the complexation of glibenclamide with –cyclodextrin", *Journal of Inclusion Phenomena and Macrocyclic Chemistry*, Vol. 68, pp. 417–421.

Rajamohanan, P. R., Ganapathy, S., Ray, S. S., Badiger, M. V, and Mashelkar, R. A., (1995), "Cross Relaxation and Exchange in Poly(acrylamide) Hydrogel Studied through 1H Mass NMR and 2D Nuclear Overhauser Enhancement Spectroscopy", *Macromolecules*, Vol.28, No.7, pp.2533–2536.

Ramazani, F., Chen, W., Van Nostrum, C. F., Storm, G., Kiessling, F., Lammers, T., and Kok, R. J., (2016), "Strategies for encapsulation of small hydrophilic and amphiphilic drugs in PLGA microspheres: State-of-the-art and challenges", *International Journal of Pharmaceutics*, Vol.499, No.1–2, pp.358–367.

Ramezanpour, M., Leung, S.S.W., Delgado-Magnero, K.H., Bashe, B.Y.M, Thewalt, J., Tieleman, D.P., (2016), "Computational and experimental approaches for investigating nanoparticle-based drug delivery systems" *Biochimica et Biophysica Acta (BBA) – Biomembranes*, Vol. 1858, pp. 1688–1709.

Ramos-González, R., García-Cerda, L. A., and Quevedo-López, M. A., (2012), "Study of the surface modification with oleic acid of nanosized HfO 2 synthesized by the polymerized complex derived sol-gel method", *Applied Surface Science*, Vol.258, No.16, pp.6034–6039.

Rasheed, A., Kumar C.K.A., Sravanthi, V.V.N.S.S., (2008), "Cyclodextrins as drug carrier molecule: A review", *Scientia Pharmaceutica*., Vol. 76, pp.567-598.

Reddy, R. R., Kumar, B.V.N P., Shanmugam, G., Madhan, B., Mandal, A. B., (2015), "Molecular level insights on, collagen−polyphenols interaction using spin−relaxation and saturation transfer difference NMR", *Journal of Physical Chemistry B*, Vol. 119, pp.14076−14085.

Redfield, A. G., (1965), "The Theory of Relaxation Processes* *This work was started while the author was at Harvard University, and was then partially supported by Joint Services Contract N5ori-76, Project Order I.",In J. S. Waugh (Ed.), *Advances in Magnetic Resonance* (Vol. 1, pp. 1–32). Academic Press.

Reif, B., (2012), "Ultra-high resolution in MAS solid-state NMR of perdeuterated proteins: Implications for structure and dynamics", *Journal of Magnetic Resonance*, Vol.216, pp.1–12.

Roointan, A., Kianpour, S., Memari, F., Gandomani, M., Gheibi Hayat, S. M., and Mohammadi-Samani, S., (2018), "Poly(lactic-co-glycolic acid): The most ardent and flexible candidate in biomedicine!", *International Journal of Polymeric Materials and Polymeric Biomaterials*, Vol.67, No.17, pp.1028–1049.

Rossi, C.; Pogliani, L.; Laschi, F.; Niccolai, N., (1983), "Proton magnetic relaxation mechanisms and

solution dynamics of l-histidine", *J. Chem. Soc. Faraday Trans.1*, Vol. 79, pp.2955-2959.
Rothenstein, D., Claasen, B., Omiecienski, B., Lammel, P., Bill, J. (2012), "Isolation of ZnO-binding 12-mer peptides and determination of their binding epitopes by NMR spectroscopy", *Journal of the American Chemical Society* ,Vol. 134, pp.12547–12556.
Rudin and Widmer, (2000), "NMR Spectroscopy in Drug Development and Analysis, Wiley–VCH, Weinheim", *NMR in Biomedicine*, Vol. 13, pp.164–165.
Ruel-Gariépy, E., Leroux, J-C.,(2004) "In situ-forming hydrogels---review of temperature-sensitive systems" *European Journal of Pharmaceutics and Biopharmaceutics*, Vol. 58, No. 2, pp. 409–26.
Ruggiero, M. R., Crich, S. G., Sieni, E., Sgarbossa, P., Forzan, M., Cavallari, E., and Aime, S., (2016), "Magnetic hyperthermia efficiency and (1)H-NMR relaxation properties of iron oxide/paclitaxel-loaded PLGA nanoparticles.", *Nanotechnology*, Vol.27, No.28, pp.285104.
Sacco A., and M. Holz, J. (1997), "NMR studies on hydrophobic interactions in solution Part 2.— Temperature and urea effect on the self-association of ethanol in water", *Chemical Society, Faraday Transaction*, Vol. 93, pp. 1101-1104.
Sah, E., and Sah, H., (2015), "Recent trends in preparation of poly(lactide-co-glycolide) nanoparticles by mixing polymeric organic solution with antisolvent", *Journal of Nanomaterials*, Vol.2015, pp. 1-22.
Saindon, P. J., Cauchon, N. S., Sutton, P. a, Chang, C. J., Peck, G. E., and Byrn, S. R., (1993), "Solid-state nuclear magnetic resonance (NMR) spectra of pharmaceutical dosage forms.", *Pharmaceutical Research*, Vol. 10, No. 2, pp. 197-203.
Salvatierra, D., Jaime, C., Virgili, A., and Sánchez-Ferrando, F., (1996), "Determination of the inclusion geometry for the β-cyclodextrin/benzoic acid complex by NMR and molecular modeling", *Journal of Organic Chemistry*, Vol.61, No.26, pp.9578–9581.
Saralidze, K., Koole, L. H., and Knetsch, M. L. W., (2010), "Polymeric microspheres for medical applications", *Materials*, Vol.3, No.6, pp.3537–3564.
Schaefer, J., and Stejskal, E. O., (1976), "Carbon-13 nuclear magnetic resonance of polymers spinning at the magic angle", *Journal of the American Chemical Society*, Vol.98, No.4, pp.1031–1032.
Schmidt, M. W., Baldridge, K. K., Boatz, J. A., Elbert, S. T., Gordon, M. S., Jensen, J. H., and Montgomery, J. A., (1993), "General Atomic and Molecular Electronic Structure System", *Journal of Computation Chemistry*, Vol.14, No.11, pp.1347–1363.
Schmitt, E. A., Flanagan, D. R., and Linhardt, R. J., (1994), "Importance of Distinct Water Environments in the Hydrolysis of Poly(dl-lactide-co-glycolide)", *Macromolecules*, Vol.27, No.3, pp.743–748.
Schneider, H.-J, Hacket, F., Rüdiger, V. and Ikeda, H. (1998), "NMR studies of cyclodextrins and cyclodextrin complexes", *Chemical Reviews*, Vol. 98, pp. 1755- 1785.
Schneider, H.-J., Hacket, F., Rüdiger, V., and Ikeda, H., (2002), "NMR Studies of Cyclodextrins and Cyclodextrin Complexes", *Chemical Reviews*, Vol.98, No.5, pp.1755–1786.
Schreier, S., Malheiros, S. V. P., and De Paula, E., (2000), "Surface active drugs: Self-association and interaction with membranes and surfactants. Physicochemical and biological aspects", *Biochimica et Biophysica Acta - Biomembranes*, Vol.1508, No.1–2, pp.210–234.
Schwardt Oliver, Hartmuth Kolb and Beat Ernst (2003), "Drug Discovery Today", *Current Topics in Medicinal Chemistry*, Vol. 3, 1-9.
Schwardt, O., Cutting, B., Kolb, H., and Ernst, B., (2010), "Drug Discovery Today", *Frontiers in Medicinal Chemistry*, Vol. 2, pp.533–543.
Scott, R. L. (1956), "Some comments on the Benesi–Hildebrand equation", *Recueil des Travaux Chimiques des Pays-Bas.,Vol.* 75, pp.787–789.
Sharp, J. S., Forrest, J. A., and Jones, R. A. L., (2001), "Swelling of Poly(dl -lactide) and Polylactide-co -glycolide in Humid Environments", *Macromolecules*, Vol.34, No.25, pp.8752–8760.
Simova, S., and Berger, S., (2005), "Diffusion Measurements vs. Chemical Shift Titration for Determination of Association Constants on the Example of Camphor–Cyclodextrin Complexes", *Journal of Inclusion Phenomena and Macrocyclic Chemistry*, Vol. 53, pp.163–170.
Singh, M., Sharma, R., and Banerjee, U.C., (2002), "Biotechnological applications of cyclodextrins", *Biotechnology Advances,* Vol. 20, pp.341–359.
Sinha, V. R., Nanda, A., Chadha, R., and Goel, H., (2011), "Molecular simulation of hydroxypropyl-β-cyclodextrin with hydrophobic selective COX-II chemopreventive agent using host-guest phenomena", *Acta Poloniae Pharmaceutica - Drug Research*, Vol.68, No.4, pp.585–592.
Skorupska, E., Jeziorna, A., Kazmierski, S., and Potrzebowski M. J., (2014), "Recent progress in solid-state NMR studies of drugs confined within drug delivery systems" *Solid State Nuclear Magnetic Resonance*, Vol. 57, pp. 2–16.
Slichter, C. P. (1978), "Principles of Magnetic Resonance", *2nd ed. Berlin: Springer*.

Slowing, I. I., Vivero-Escoto, J.L., Wu, Chia-Wen., Lin, V., S.-Y., (2008), "Mesoporous silica nanoparticles as controlled release drug delivery and genetransfection carriers", *Advanced Drug Delivery Reviews*, Vol. 60, pp. 1278–1288.

Sohajda, T., Varga, E., Iványi, R., Fejos, I., Szente, L., Noszál, B., and Béni, S., (2010), "Separation of vinca alkaloid enantiomers by capillary electrophoresis applying cyclodextrin derivatives and characterization of cyclodextrin complexes by nuclear magnetic resonance spectroscopy", *Journal of Pharmaceutical and Biomedical Analysis*, Vol.53, No.5, pp.1258–1266.

Solomon, I., (1955), "Relaxation Processes in a System of Two Spins", *Phys. Rev.*, Vol.99, No.2, pp.559–565.

Soo-Jin Park and Ki-Seok Kim (2011), "Investigation of Drug Delivery Behaviors by NMR Spectroscopy", *Structure-Activity Relationship Studies in Drug Development by NMR Spectroscopy*, Vol. 1, pp.36-66.

Souza, S. D., Dorati, R., and Deluca, P. P., (2014), "Effect of hydration on physico-chemical properties of end- capped PLGA", *Advances in Biomaterials*, Vol. 2014, pp.1–23.

Spataro, G., Champouret, Y., Florian, P., Coppel, Y., and Kahn, M. L., (2018), "Multinuclear solid-state NMR study: A powerful tool for understanding the structure of ZnO hybrid nanoparticles", *Physical Chemistry Chemical Physics*, Vol.20, No.18, pp.12413–12421.

Spencer, R. G. S., and Fishbein, K. W., (2000), "Measurement of Spin-Lattice Relaxation Times and Concentrations in Systems with Chemical Exchange Using the One-Pulse Sequence: Breakdown of the Ernst Model for Partial Saturation in Nuclear Magnetic Resonance Spectroscopy", *Journal of Magnetic Resonance*, Vol.142, No.1, pp.120–135.

Srinivasan, K., and Stalin, T., (2014) "Study of inclusion complex between 2,6-dinitrobenzoic acid and 468 β-cyclodextrin by 1H NMR, 2D 1H NMR (ROESY), FT-IR, XRD, SEM and photophysical methods",*Spectrochimica Acta, Part A: Molecular and Biomolecular Spectroscopy*, Vol. 130, pp. 105–115.

Srivastava, A., Yadav, T., Sharma, S., Nayak, A., Kumari, A., and Mishra, N., (2016), "Polymers in Drug Delivery", *Journal of Biosciences and Medicines*, Vol. 4, pp. 69-84.

Steffy, K., Shanthi, G., Maroky, A. S., and Selvakumar, S., (2018), "Enhanced antibacterial effects of green synthesized ZnO NPs using Aristolochia indica against Multi-drug resistant bacterial pathogens from Diabetic Foot Ulcer", *Journal of Infection and Public Health*, Vol.11, No.4, pp.463–471.

Steigel, A. (1978), "NMR Basic principles and progress (eds) P Diehl, E Fluck and R Kosfeld", *Heidelberg: Springer-Verlag: Berlin*, p. 15.

Stejskal, E. O., and Tanner, J. E., (1965), "Spin Diffusion Measurements: Spin Echoes in the Presence of a Time-Dependent Field Gradient", *The Journal of Chemical Physics*, Vol.42, No.1, pp.288–292.

Stilbs, P., (1999), "Diffusion Studied Using NMR Spectroscopy",In J. C. Lindon (Ed.), *Encyclopedia of Spectroscopy and Spectrometry* (pp. 369–375). Oxford: Elsevier.

Stockman, B. J., and Dalvit, C., (2002), "NMR screening techniques in drug discovery and drug design" *Progress in Nuclear Magnetic Resonance Spectrosc*opy, Vol. 41, pp.187–231.

Stone, N. J., (2005), "Table of nuclear magnetic dipole and electric quadrupole moments", *Atomic Data and Nuclear Data Tables*, Vol.90, No.1, pp.75–176.

Su, Z., Sun, F., Shi, Y., Jiang, C., Meng, Q., Teng, L., and Li, Y., (2009), "Effects of Formulation Parameters on Encapsulation Efficiency and Release Behavior of Risperidone Poly(D,L-lactide-co-glycolide) Microsphere", *Chemical & Pharmaceutical Bulletin*, Vol.57, No.11, pp.1251–1256.

Szejtli, J.,(2004), "Past, present, and future of cyclodextrin research", *Pure Applied Chem*istry, Vol. 76, pp. 1825–1845.

Taluja, A., Youn, Y.S., and Bae, Y.H., (2007), "Novel approaches in microparticulate PLGA delivery systems encapsulating protein" *Journal of Materials Chemistry*, Vol. 17, pp. 4002 –14.

Tan, L., Liu, J., Zhou, W., Wei, J., Peng, Z., (2014), "A novel thermal and pH responsive drug delivery system based on ZnO@PNIPAM hybrid nanoparticles", *Materials Science and Engineering C*, Vol. 45, pp. 524–529.

Tang, Q., and Luo, Q., (2013), "Adsorption of CO 2 at ZnO : A Surface Structure E ff ect from DFT + U Calculations", *J. Phys. Chem. C,* Vol. 117, No. 44, pp. 22954-22966.

Thiele, C. M., Petzold, K., and Schleucher, J., (2009), "EASY ROESY: Reliable cross-peak integration in adiabatic symmetrized ROESY", *Chemistry - A European Journal*, Vol.15, No.3, pp.585–588.

Thordarson, P., (2011), "Determining association constants from titration experiments in supramolecular chemistry", *Chem. Soc. Rev.*, Vol.40, No.3, pp.1305–1323.

Tinoco, L.W., and Villar, J.D.F., (1999), "Determination of correlation times from selective and non-selective spin-lattice relaxation rates and their use in drug-drug and drug-albumin interaction studies", *Journal of the Brazilian Chemical Society,* Vol.10, pp.281-286.

Toman, B., Nelson, M. A., and Lippa, K. A., (2016), "Chemical purity using quantitative 1H-nuclear magnetic resonance: A hierarchical Bayesian approach for traceable calibrations", *Metrologia*, Vol.53, No.5, pp.1193–1203.

Tong, R., Tang, L., Ma, L., Tu, C., Baumgartner, R., and Cheng, J., (2014), "Smart chemistry in polymeric nanomedicine", *Chemical Society Reviews*, Vol.43, No.20, pp.6982–7012.

Torchia, D. A., (1978), "The measurement of proton-enhanced carbon-13 T1 values by a method which suppresses artifacts", *Journal of Magnetic Resonance (1969)*, Vol.30, No.3, pp.613–616.

Tošner, Z., Aski, S. N., and Kowalewski, J., (2006), "Rotational dynamics of adamantanecarboxylic acid in complex with β-cyclodextrin", *Journal of Inclusion Phenomena*, Vol.55, No.1–2, pp.59–70.

Toth, G., Mohacsi, R., Racz, A., Rusu, A., Horvath, P., Szente, L., Beni, S. and Noszal, B., (2013), "Equilibrium and structural characterization of ofloxacin–cyclodextrin complexation", *J. Incl. Phenom. Macrocycl. Chem.*, Vol. 77, pp.291–300.

Tran, S., DeGiovanni, P.-J., Piel, B., and Rai, P., (2017), "Cancer nanomedicine: a review of recent success in drug delivery", *Clinical and Translational Medicine*, Vol.6, No.1, pp. 44-65.

Tripathy, N., Ahmad, R., Ko, H.A., Khang, G., and Hahn, Y.-B., (2015), "Enhanced anticancer potency using an acid-responsive ZnO-incorporated liposomal drug-delivery system" *Nanoscale*, Vol. 7, pp.4088–4096.

Tsonos, C., Kanapitsas, A., Psarras, G. C., and Speliotis, Th., (2015) "Effect of ZnO Nanoparticles on the Dielectric/Electrical and Thermal Properties of Epoxy-Based Nanocomposites" *Science of Advanced Materials*, Vol. 7, No. 3, pp. 588-597.

Uekama, K., Hirayama, F., and Irie, T., (1998), "Cyclodextrin drug carrier systems", *Chemical Reviews*, Vol.98, No.5, pp.2045–2076.

Uğurbil, K., (1985), "Magnetization-transfer measurements of individual rate constants in the presence of multiple reactions", *Journal of Magnetic Resonance (1969)*, Vol.64, No.2, pp.207–219.

Ugwu, S. O., Alcala, M. J., Bhardwaj, R., and Blanchard, J., (1999), "Characterization of the complexation of diflunisal with hydroxypropyl-β-cyclodextrin ", *Journal of Phramceutical and Biomedical Analysis*, Vol. 19, pp.391–397.

Ulatowski, F., Dabrowa, K., Bałakier, T., and Jurczak, J., (2016), "Recognizing the Limited Applicability of Job Plots in Studying Host-Guest Interactions in Supramolecular Chemistry", *Journal of Organic Chemistry*, Vol.81, No.5, pp.1746–1756.

Upadhyay, S. K., and Kumar, G., (2009), "NMR and molecular modelling studies on the interaction of fluconazole with β-cyclodextrin", *Chemistry Central Journal*, Vol.3, No.1, pp.1–9.

Valdez, C. N., Schimpf, A. M., Gamelin, D. R., and Mayer, J. M., (2014), "Low Capping Group Surface Density on Zinc Oxide Nanocrystals", *ACS Nano*, Vol. 8, No.9, pp.9463–9470.

Veiga, F. J. B., Fernandes, C. M., Carvalho, R. A., and Geraldes, C. F. G. C., (2001), "Molecular Modelling and 1H-NMR: Ultimate Tools for the Investigation of Tolbutamide: .BETA.-Cyclodextrin and Tolbutamide: Hydroxypropyl-.BETA.-Cyclodextrin Complexes.", *Chemical & Pharmaceutical Bulletin*, Vol.49, No.10, pp.1251–1256.

Velusamy, P., and Lakshmi, G., (2017), "Enhanced photocatalytic performance of (ZnO/CeO2)-β-CD system for the effective decolorization of Rhodamine B under UV light irradiation", *Applied Water Science*, Vol.7, No.7, pp.4025–4036.

Viel, S., Ziarelli, F., and Caldarelli, S., (2003), "Enhanced diffusion-edited NMR spectroscopy of mixtures using chromatographic stationary phases", *Proceedings of the National Academy of Sciences*, Vol. 100, pp. 9697–9698.

Viswalingam, M., Prabu, S., Sivakumar, K., and Rajamohan, R., (2016), "Spectral characteristics of desipramine in β-cyclodextrin cavity through inclusion complex", *Journal of Macromolecular Science, Part A: Pure and Applied Chemistry*, Vol.53, No.12, pp.781–790.

Von Philipsborn, W. (1971), "Methods and Applications of Nuclear Magnetic Double Resonance", *Angewandte Chemie International Edition*, Vol. 10, pp. 472–490.

Voulgari, A., Benaki, D., Michaleas, S. and Antoniadou-Vyza, E. (2007), "The effect of cyclodextrin on tenoxicam photostability, studied by a new liquid chromatography method, the dependence on drug dimerization", *Journal of Inclusion Phenomena and Macrocyclic Chemistry*, Vol. 57, pp. 141–146.

Wagner, G., and Wüthrich, K., (1982), "Sequential resonance assignments in protein 1H nuclear magnetic resonance spectra: Basic pancreatic trypsin inhibitor", *Journal of Molecular Biology*, Vol.155, No.3, pp.347–366.

Wahajuddin and Arora, S., (2012), "Superparamagnetic iron oxide nanoparticles: magnetic nanoplatforms as drug carriers," *International Journal of Nanomedicine*, Vol. 7, pp. 3445–3471, 2012.

Wang, M., Yu, G., Ji, W., Li, L., Ding, W., Peng, L., (2015), "Identification of intrinsic hydrogen impurities in ZnO with 1H solid-state nuclear magnetic resonance spectroscopy", *Chemical Physics Letters*, Vol. 627 pp.7–12.

Wangsness, R. K., and Bloch, F., (1953), "The Dynamical Theory of Nuclear Induction", *Phys. Rev.*, Vol.89,

No.4, pp.728–739.
Watermann A. and J. Brieger, (2017),"Mesoporous silica nanoparticles as drug delivery vehicles in cancer," *Nanomaterials*, Vol. 7, pp. 189-206.
Webber, M. J., and Langer, R., (2017), "Drug delivery by supramolecular design", *Chemical Society Reviews*, Vol.46, No.21, pp.6600–6620.
Weiss, A., (1983), "E. Fukushima, St. B. W. Roeder: Experimental Pulse NMR. A Nuts and Bolts Approach. Addison-Wesley Publ. Comp., Inc., Reading, Massachusetts 1981. 539 Seiten, Preis: US $ 34.50", *Berichte Der Bunsengesellschaft Für Physikalische Chemie*, Vol.87, No.5, pp.458.
Wildes, D., and Marqusee, S., (2009), "Hydrogen exchange and ligand binding: Ligand-dependent and ligand-independent protection in the Src SH3 domain", *Protein Science*, Vol.14, No.1, pp.81–88.
Wimmer, R., Aachmann, F. L., Larsen, K. L., and Petersen, S. B., (2002), "NMR diffusion as a novel tool for measuring the association constant between cyclodextrin and guest molecules", *Carbohydrate Research*, Vol.337, No.9, pp.841–849.
Wischke, C., and Schwendeman, S. P., (2008), "Principles of encapsulating hydrophobic drugs in PLA/PLGA microparticles", *International Journal of Pharmaceutics*, Vol.364, No.2, pp.298–327.
Wolf, D. (viaf)93772978, (1979), "*Spin-temperature and nuclear-spin relaxation in matter : basic principles and applications*". Oxford : Clarendon press.
Wong-Moon, K. C., Sun, X., Nguyen, X. C., Quan, B. P., Shen, K., and Burke, P. A., (2008), "NMR spectroscopic evaluation of the internal environment of PLGA microspheres", *Molecular Pharmaceutics*, Vol.5, No.4, pp.654–664.
Woods, M., Woessner, D. E., and Sherry, A. D., (2006), "Paramagnetic lanthanide complexes as PARACEST agents for medical imaging", *Chemical Society Reviews*, Vol.35, No.6, pp.500–511.
Xie, H., (2016), "Catalase Immobilized ZnO Nanorod with β-cyclodextrin Functionalization for Electrochemical Determination of Forchlorfenuron", I*nternational Journal of ectrochemical Science,* Vol. 11, pp.2612–2620.
Xu, Z. P., Zeng, Q. H., Lu, G. Q., and Yu, A. B., (2006) "Inorganic nanoparticles as carriers for efficient cellular delivery," *Chemical Engineering Science*, vol. 61, no. 3, pp. 1027–1040.
Yang, L. J., Chen, W., Ma, S. X., Gao, Y. T., Huang, R., Yan, S. J., and Lin, J., (2011), "Host–guest 434 system of taxifolin and native cyclodextrin or its derivative: Preparation, characterization of inclusion mode, and solubilization" *Carbohydrate Polymers*, Vol. 85, pp. 629–637.
Yang, Q., Qiu, H., Guo, W., Wang, D., Zhou, X., Xue, D., and Wang, Y., (2015), "Quantitative 1H-NMR method for the determination of tadalafil in bulk drugs and its tablets", *Molecules*, Vol.20, No.7, pp.12114–12124.
Ye, Y. Q., Malon, M., Martineau, C., Taulelle, F., and Nishiyama, Y., (2014), "Rapid measurement of multidimensional 1H solid-state NMR spectra at ultra-fast MAS frequencies", *Journal of Magnetic Resonance*, Vol.239, pp.75–80.
Yuris, A., Hindmarsh, J., Hardacre, A. K., Goh, K. K. T., and Matia-Merino, L., (2019), "The interactions between wheat starch and Mesona chinensis polysaccharide: A study using solid-state NMR", *Food Chemistry*, Vol. 284, No. September 2018, pp.67–72.
Zhang, H., Chen, B., Jiang, H., Wang, C., Wang, H., Wang, X., (2011), "A strategy for ZnO nanorod mediated multi-mode cancer treatment", *Biomaterials*, Vol. 32, pp.1906–1914.
Zhang, J., and Ma, P. X., (2013), "Cyclodextrin-based supramolecular systems for drug delivery: recent progress and future perspective.", *Advanced Drug Delivery Reviews*, Vol.65, No.9, pp.1215–33.
Zhang, L., Yin, Q., Li, J., Huang, H., Wu, Q., and Mao, Z., (2015), "Biodegradable PLGA nanoparticles loaded with hydrophobic drugs: confocal Raman microspectroscopic characterization", *Journal of Materials Chemistry B*, Vol.3, No.18, pp.2245–2251.
Zhang, R., Chen, Y., Rodriguez-Hornedo, N., and Ramamoorthy, A., (2016), "Enhancing NMR Sensitivity of Natural-Abundance Low-γ Nuclei by Ultrafast Magic-Angle-Spinning Solid-State NMR Spectroscopy", *ChemPhysChem*, Vol.17, No.19, pp.2962–2966.
Zhang, R., Mroue, K. H., and Ramamoorthy, A., (2017), "Proton-Based Ultrafast Magic Angle Spinning Solid-State NMR Spectroscopy", *Accounts of Chemical Research*, Vol.50, No.4, pp.1105–1113.
Zhang, R., Nishiyama, Y., Sun, P., and Ramamoorthy, A., (2015), "Phase cycling schemes for finite-pulse-RFDR MAS solid state NMR experiments", *Journal of Magnetic Resonance*, Vol.252, pp.55–66.
Zhang, R., and Ramamoorthy, A., (2014), "Performance of RINEPT is amplified by dipolar couplings under ultrafast MAS conditions", *Journal of Magnetic Resonance*, Vol.243, pp.85–92.
Zhang, Y., Chan, H. F. and Leong, K. W., (2013), "Advanced materials and processing for drug delivery: The past and the future", *Advanced Drug Delivery Review*, Vol. 65, pp. 104–120.
Zhang, Y., Wischke, C., Mittal, S., Mitra, A., and Schwendeman, S. P., (2016), "Design of Controlled Release PLGA Microspheres for Hydrophobic Fenretinide", *Molecular Pharmaceutics*, Vol.13, No.8,

pp.2622–2630.
Zhao, R., Sandström, C., Zhang, H., and Tan, T., (2016), "NMR Study on the Inclusion Complexes of β-Cyclodextrin with Isoflavones", *Molecules*, Vol.21, No.4, pp.1–11.
Zhao, R., Tan, T., Sandström, C., (2011), "NMR studies on puerarin and its interaction with beta-cyclodextrin", *Journal of Biological Physics.*, Vol. 37, pp.387–400.
Ziarelli, F., and Caldarelli, S., (2006), "Solid-state NMR as an analytical tool: Quantitative aspects", *Solid State Nuclear Magnetic Resonance*, Vol.29, No.1–3, pp.214–218.

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Publications

1. Peer reviewed International Journals (Published)

(i) **Deepak Kumar**; Yogeshwaran Krishnan; Manikandan Paranjothy; Samanwita Pal (2017)"Analysis of Molecular Interaction of Drugs within β-Cyclodextrin Cavity by Solution-State NMR Relaxation" *J. Phys. Chem. B,* Vol. 121 (13), pp.2864-2872. **DOI**: 10.1021/acs.jpcb.6b11704.

(ii) **Deepak Kumar;** Samanwita Pal (2018), "Solution Dynamics of 5-Fluorouracil entrapped in Poly Lactic-co-Glycolic Acid (PLGA) microsphere - A study with 1D selective NMR methods", *Magn. Reson Chem.*, Vol. 57, pp.118-128. **DOI:** 10.1002/mrc.4799.

2. Peer reviewed International Conference proceedings

(i) **Deepak Kumar**; Samanwita Pal (2019), "Optical Band Gap and Crystallite Size Investigations of Anticancer Drug Loaded ZnO Nanoparticles", *AIP Conf. Proc* (Accepted).

3. Under review or preparation

(i) **Deepak Kumar**; Yogeshwaran Krishnan; Manikandan Paranjothy; Samanwita Pal, "Internuclear distance measurement in cyclodextrin inclusion complexes: A recipe using 1D selective NMR methods"**(Under review).**

(ii) **Deepak Kumar;** Samanwita Pal, "Solid state NMR investigation of anticancer drug loaded ZnO nanoparticle" **(Under preparation).**

4. Miscellaneous work

(i) **Deepak Kumar;** Samanwita Pal; Meenu Chhabra; S. Harinipriya (2015), "Separation of enantiomers of alanine from racemic mixture by polycrystalline metal surfaces- A spectroelectrochemical approach", *ECS Transactions*, Vol. 66 (32), pp.33-43. **DOI:** 10.1149/06632.0033ecst.

(ii) S. Padampriya; S. Harinipriya; V. Sudha; **Deepak Kumar;** Samanwita Pal; Bhawna Chaubey (2017), "Polyaniline coated copper for hydrogen storage and evolution in alkaline medium", *Int. J. Hydrog. Energy*, Vol. 42, pp.20453-20462**. DOI:** 10.1016/j.ijhydene.2017.06.204.

(iii) S. Padampriya; S. Harinipriya; K. Jaidev; V. Sudha; **Deepak Kumar;** Samanwita Pal (2017), "Storage and evolution of hydrogen in acidic medium by Polyaniline" *Int. J. Energy Res.*, Vol. 42, pp.1196-1209**. DOI:** 10.1002/er.3920.

(iv) Jositta Sherine; Arun Upadhyay; Amit Mishra; **Deepak Kumar**; Samanwita Pal; S. Harinipriya (2018), "Ag(I) and Au(III) Mercaptobenzothiazole complexes induced apoptotic cell death", *Sci. Rep.*, Vol. 9, pp.621-630. DOI: 10.1038/s41598-018-36801-6.

5. Conference without proceedings

(i) **Deepak Kumar;** Samanwita pal, "Solution Dynamics of 5-Fluorouracil entrapped in PolyLactic-co-Glycolic Acid (PLGA) microsphere: A NMR study", *AMPERE NMR SCHOOL 2017* at Zakopane, Poland. (*Poster Presentation*)

(ii) **Deepak Kumar;** Samanwita pal, "Internuclear distance measurements in cyclodextrin inclusion complexes: A recipe using 1D selective NMR methods", *NMRS 2018* at IISER Mohali, India. (*Poster Presentation*)

(iii) **Deepak Kumar;** Samanwita pal, "^{1}H and ^{19}F NMR Investigation of 5-Fluorouracil (FU) entrapped Poly Lactic-co-Glycolic Acid (PLGA) microsphere", *7th Asia Pacific NMR Symposium & 23rd Annual Meeting of NMRS-India (APNMR-2017)* at Department of Chemistry, Indian Institute of Science Bangalore, India. (*Poster Presentation*)

(iv) **Deepak Kumar;** Samanwita pal, "Motional dynamics investigation of drug-supramolecule interaction by proton NMR relaxation", *22nd Conference of National Magnetic Resonance Society of India (NMRS-2016)* at Department of Chemistry, Indian Institute of Technology Kharagpur, India. (*Oral Presentation*)

(v) **Deepak Kumar;** Meenu Chhabra; S. Harinipriya; Samanwita Pal, "Adsorption and Enantiomeric separation of amino acids on polycrystalline metal surfaces: A spectroelectrochemical approach" *17th National Symposium in Chemistry, Chemical Research Society of India (CRSI-NSC 2015)* at CSIR- National Chemical Laboratory (NCL), Pune, India. (*Poster Presentation*)

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