Prof. Slavka Tcholakova

Head of Department of Chemical
and Pharmaceutical Engineering
Faculty of Chemistry and Pharmacy
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Academic degrees:

2004 – PhD in Physical Chemistry, Sofia University, Sofia, Bulgaria.

1996 – MSc in Chemical Physics and Theoretical Chemistry, Sofia University, Sofia, Bulgaria.

Academic career:

2013 – present: Professor, Faculty of Chemistry and Pharmacy, Sofia University

2009-2013: Associate Professor, Faculty of Chemistry, Sofia University

2006-2009: Assistant Professor, Faculty of Chemistry, Sofia University.

1997: Research Associate, Research Center Paul Pascal, CNRS, Bordeaux, France.

1996-2006: Researcher, Faculty of Chemistry, Sofia University.

Professional and administrative service:

2015-present: Head, Department of Chemical and Pharmaceutical Engineering, Faculty of Chemistry and Pharmacy, Sofia University

2018-present: Project leader of research project "Natural bioactive substances for personal care products, cosmetics and dietary supplements", Centre of Competence "Sustainable utilization of bio resources and waste of medicinal and aromatic plants for innovative bioactive products"

2018-present: Head, Laboratory of "Formation and characterization of foams, emulsions and porouse materials" in Centre of Excellence "National Centre for Mechatronics and Clean Technologies"

2022 – present: Member, Editorial Board, Frontiers in Soft Matter

2016-present: Member, Editorial Board, Colloid & Interfaces (MDPI)

2005-present: Reviewer for numerous international journals and research funds

Research Interests:

Physical chemistry and applications of disperse systems and surfactants:

- Formation, stability and rheology of foams and emulsions
- Biophysics of food digestion and oral drug delivery
- Formation and stability of porous materials
- Surfactants, micellar solutions, adsorption, solubilization, detergency
- Antifoam effect of oils and oil-solid mixtures

Publications, patents, conferences and supervision:

- 121 scientific papers, incl. *Nature* (1), *Nature Phys.* (1), *Nature Comm.* (1), *Adv. Colloid Interface Sci.* (5), *J. Colloid Interface Sci* (7), *Langmuir* (37), *Colloids Surfaces A* (17) cited > 4000 times, *h*-index = 36 (Scopus),
- 10 patents - 6 international (WIPO, US, Europe), 1 German, 1 French, 1 Japanese, 1 Chinese
- 105 lectures and posters presented at International conferences and symposia (18 plenary or keynote)
- 14 completed PhD Theses and 6 others under preparation
- 42 completed MSc and BSc Theses

Teaching Courses:

- Transport Phenomena
- Chemical Kinetics and Catalysis
- Emulsifiers, Foam Stabilizers and Wetting Agents
- Formation and Stability of Disperse Systems
- Separation Processes in Disperse Systems

Awards and fellowships:

2018: National award “Pythagoras” for high scientific achievements in natural sciences.

2006: Sofia University Foundation "St. Kliment Ohridski" award "Best Young Scientist"

Organizer of scientific events:

2011: Training school "Fluids and Solid Interfaces", Sofia, Bulgaria, 12-15 April 2011

2010: 8th International conference Eufoam; Bugaria

2010: Summer training school Physics of Droplets; Bulgaria

Member of the scientific committees of 3 international conferences

Professional Societies:

American Chemical Society (ACS)

European Colloid and Interface Society (ECIS)

European Rheological Society (ERC)

Projects:

2004-present: PI of 56 projects funded by international companies, incl. Unilever, BASF, Saint Gobain, Wacker, Lubrizol, Productalysa.

2019-2021: Leader of the Bulgarian team, ERC project (CoolNanoDrop No 841827, in collaboration with Queen Mary University of London)

2017-2018: Leader of the Bulgarian team, ERC project (ShipShape No 766656, in collaboration with Queen Mary University of London)

2017-present: Member of the MC of 2 COST actions CA16205 UNGAP and MP1305 "Flowing Matter"

List of publications:

(A) Emulsions: formation, stability, rheology (theoretical models for predicting the outcome of emulsification in turbulent flow; mechanisms and factors controlling the coalescence stability of protein containing emulsions and experimental and theoretical studies about emulsion rheology; self-shaping and self-emulsifications).

1. D. Cholakova, Z. Vinarov, S. Tcholakova, N. Denkov, Self-emulsification in chemical and pharmaceutical technologies. *Current Opinion in Colloid & Interface Sci.* 59 (**2022**) 101576; doi: 10.1016/j.cocis.2022.101576
2. I. Lesov, D.Glushkova, D.Cholakova, M.T.Georgiev, S.Tcholakova, S.K.Smoukov, N.Denkov Flow Reactor for Preparation of Lipid Nanoparticles via Temperature Variations *J. Ind. Eng. Chem.* 112 (**2022**) 37–45; doi: 10.1016/j.jiec.2022.03.043
3. D. Cholakova, K. Tsvetkova, S. Tcholakova, N. Denkov, Rheological Properties of Rotator and Crystalline Phases of Alkanes. *Colloids Surf. A* 634 (**2022**) 127926; doi: 10.1016/j.colsurfa.2021.127926
4. D. Cholakova, M. Lisicki, S. K. Smoukov, S. Tcholakova, E. Lin, J. Chen, G. De Canio, E. Lauga, N. D. Denkov. Rechargeable Self-Assembled Droplet Microswimmers Driven by Surface Phase Transitions, *Nature Physics* 17 (**2021**) 1050–1055; doi: 10.1038/s41567-021-01291-3.
5. D. Cholakova, D. Glushkova, S. Tcholakova, N. Denkov, Cold-Burst Method for Nanoparticle Formation with Natural Triglyceride Oils, *Langmuir* 37 (**2021**) 7875–7889; doi: 10.1021/acs.langmuir.0c02967
6. D. Cholakova, D. Glushkova, Z. Valkova, S. Tsibranska-Gyoreva, K. Tsvetkova, S. Tcholakova, N. Denkov, Rotator phases in hexadecane emulsion drops revealed by X-ray synchrotron techniques. *J. Colloid Interface Sci.* 604 (**2021**) 260-271; doi: 10.1016/j.jcis.2021.06.122
7. N. Politova-Brinkova, S. Tsibranska-Gyoreva, S. Tcholakova, N. Denkov, T. Danner, Preparation of TiO_2 Nanoparticle Aggregates and Capsules by the 'Two-Emulsion Method'. *Colloids Interfaces* **4** (**2020**) 57; doi: 10.3390/colloids4040057
8. D. Cholakova, D. Glushkova, S. Tcholakova, N. Denkov, Nanopore and Nanoparticle Formation with Lipids Undergoing Polymorphic Phase Transitions, *ASC Nano* 14 (**2020**) 8594−8604; doi: 10.1021/acsnano.0c02946
9. D. Cholakova, Zh. Valkova, S. Tcholakova, N. Denkov, B. P. Binks, Spontaneous Particle Desorption and "Gorgon" Drop Formation From Particle-Armored Oil Drops Upon Cooling. *Soft Matter* 16 (**2020**) 2480−2496; doi: 10.1039/c9sm02354b3
10. S. Tsibranska, S. Tcholakova, K. Golemanov, N. Denkov, L. Arnaudov, E. Pelan, S. Stoyanov, Origin of the extremely high elasticity of bulk emulsions, stabilized by Yucca Schidigera saponins. *Food Chem.* 316 (**2020**) 126365; doi: https://doi.org/10.1016/j.foodchem.2020.126365
11. S. Tsibranska, S. Tcholakova, K. Golemanov, N. Denkov, E. Pelan, S. Stoyanov, Role of Interfacial Elasticity for the Rheological Properties of Saponin-stabilized Emulsions. J. Colloid Interface Sci. 564 (**2020**) 264; doi: https://doi.org/10.1016/j.jcis.2019.12.108
12. D. Gazolu-Rusanova, I. Lesov, S. Tcholakova, N. Denkov, B. Ahtchi, Food Grade Nanoemulsions Preparation by Rotor-Stator Homogenization. Food Hydrocolloids 102 (**2020**) 105579; doi: 10.1016/j.foodhyd.2019.105579
13. N. Denkov, S. Tcholakova, D. Cholakova, Surface Phase Transitions in Foams and Emulsions. Curr. Opin. Colloid Interface Sci. 44 (**2019**) 32–42; doi: 10.1016/j.cocis.2019.09.005
14. D. Cholakova, N. Denkov, S. Tcholakova, Zh. Valkova, S. Smoukov. "Multilayer Formation in Self-Shaping Emulsion Droplets" *Langmuir* **2019**, *35*, 5484–5495; doi: 10.1021/acs.langmuir.8b02771.

15. I. Lesov, Z. Valkova, E. Vassileva, G. Georgiev, K. Ruseva, M. Simeonov, S. Tcholakova, N. Denkov, S. Smoukov, "Bottom-Up Synthesis of Polymeric Micro- and Nanoparticles with Regular Anisotropic Shapes". *Macromolecules* **2018**, *51*, 7456−7462; doi: 10.1021/acs.macromol.8b00529.

16. Zh. Valkova, D. Cholakova, S. Tcholakova, N. Denkov, S. K. Smoukov. "Mechanisms and Control of Self-Emulsification upon Freezing and Melting of Dispersed Alkane Drops". *Langmuir* **2017**, *33*, 12155−12170.

17. N. Politova, S. Tcholakova, S. Tsibranska, N. D. Denkov, K. Muelheims. "Coalescence Stability of Water-in-Oil drops: Effects of Drop Size and Surfactant Concentration", *Colloids Surf. A* **2017,** *531*, 32–39.

18. D. Cholakova, Zh. Valkova, S. Tcholakova, N. Denkov, S. K. Smoukov. ""Self-Shaping" of Multicomponent Drops.", *Langmuir* **2017**, *33*, 5696−5706.

19. S. Tcholakova, Z. Valkova, D. Cholakova, Z. Vinarov, I. Lesov, N. D. Denkov, K. Smoukov. "Efficient Self-Emulsification via Cooling-Heating Cycles.", *Nature Comm.*, **2017**, *8*, 15012; doi: 10.1038/ncomms15012.

20. D. Cholakova, N. Denkov, S. Tcholakova, I. Lesov, S. K. Smoukov, „Control of Drop Shape Transformations in Cooled Emulsions", *Adv. Colloid Interface Sci.* **2016,** *235*, 90–107.

21. N. Denkov, D. Cholakova, S. Tcholakova, S. Smoukov. „On the Mechanism of Drop Self-Shaping in Cooled Emulsions", *Langmuir* **2016**, *32*, 7985–7991.

22. S. Tcholakova, N. Politova, N. Denkov, "Kinetics of Drop Breakage and Drop-Drop Coalescence in Turbulent Flow" *Biomath Communications* **2016**, *3*, 1-11.

23. N. Denkov, S. Tcholakova, I. Lesov, D. Cholakova, S. Smoukov "Self-Shaping of Droplets via Formation of Intermediate Rotator Phases upon Cooling" *Nature* **2015**, *528*, 392-395.

24. S. Tcholakova, I. Lesov, K. Golemanov, N. D. Denkov, S. Judat, R. Engel, T. Danner "Efficient Emulsification of Viscous Oils at High Drop Volume Fraction" *Langmuir* **2011**, *27*, 14783–14796.

25. S. Tcholakova, I. Lesov, K. Golemanov, N. D. Denkov, S. Judat, "Drop size in concentrated emulsions, obtained by rotor-stator homogenization", *5th World Congress on Emulsions,* Lyon **2010**, Reference 1.1-50.

26. N. D. Denkov, S. Tcholakova, K. Golemanov, A. Lips, "Viscous friction in sheared concentrated emulsions and foams" *5th World Congress on Emulsions,* Lyon **2010**, Reference 1.3-69.

27. S. Tcholakova, N. D. Denkov, D. Hristova, M. Deruelle, "Emulsification and emulsion stability of silica-charged silicone oils", *5th World Congress on Emulsions,* Lyon **2010**, Reference 4.1-53.

28. S. Tcholakova, N. Denkov, A. Lips, "Comparison of solid particles, globular proteins and surfactants as emulsifiers" *Phys. Chem. Chem. Phys.* **2008**, *10*, 1608-1627.

29. K. Golemanov, S. Tcholakova, N. D. Denkov, K.P. Ananthapadmanabhan, A. Lips, "Breakup of bubbles and drops in steadily sheared foams and concentrated emulsions" *Phys. Rev. E* **2008**, *78*, 051405.

30. S. Tcholakova, N. D. Denkov, K. Golemanov, K.P. Ananthapadmanabhan, A. Lips, "Theoretical model of viscous friction inside steadily sheared foams and concentrated emulsions", *Phys. Rev. E* **2008**, *78*, 011405.

31. N. Vankova, S. Tcholakova, N.D. Denkov, I.B. Ivanov, V. Vulchev, T. Danner, "Emulsification in turbulent flow 1. Mean and maximum drop diameters in inertial and viscous regimes", *J. Colloid Interface Sci.* **2007**, *312*, 363-380.

32. N. Vankova, S. Tcholakova, N.D. Denkov, V. Vulchev, T. Danner, "Emulsification in turbulent flow 2. Breakage rate constants", *J. Colloid Interface Sci.* **2007**, *313*, 612-629.

33. S. Tcholakova, N. Vankova, N.D. Denkov, T. Danner, "Emulsification in turbulent flow 3. Daughter drop-size distribution", *J. Colloid Interface Sci.* **2007**, *310*, 570-589.

34. H. Steiner, R. Teppner, G. Brenn, N. Vankova, S. Tcholakova, N. Denkov, "Numerical simulation and experimental study of emulsification in a narrow-gap homogenizer", *Chemical Engineering Sci.* **2006**, *61*, 5841-5855.

35. S. Tcholakova, N. Vankova, N.D. Denkov, I.B. Ivanov, T. Danner, "Kinetics of drop breakup during emulsification in turbulent flow", *4th World Congress on Emulsions,* Lyon **2006**, Reference 304.

36. N.D. Denkov, S. Tcholakova, I.B. Ivanov, "Globular proteins as emulsion stabilizers - similarities and differences with surfactants and solid particles", *4th World Congress on Emulsions,* Lyon **2006**.

37. S. Tcholakova, N. D. Denkov, I. B. Ivanov, B. Campbell, "Coalescence stability of emulsions containing globular milk proteins", *Adv. Colloid Interface Sci.* **2006**, *123-126*, 259-293.

38. S. Tcholakova, N. D. Denkov, D. Sidzhakova, B. Campbell, "Effect of thermal treatment, ionic strength, and pH on the short-term and long-term coalescence stability of β-lactoglobulin emulsions", *Langmuir* **2006**, *22*, 6042-6052.

39. K. Golemanov, S. Tcholakova, P. Kralchevsky, K. P. Ananthapadmanabhan, A. Lips, "Latex-particle-stabilized emulsions of anti-Bancroft type", *Langmuir* **2006**, *22*, 4968-4977.

40. K. Golemanov, S. Tcholakova, N. D. Denkov, Th. Gurkov, "Selection of surfactants for stable paraffin-in-water dispersions, undergoing solid-liquid transition of the dispersed particles", *Langmuir* **2006**, *22,* 3560-3569.

41. S. Tcholakova, N. D. Denkov, D. Sidzhakova, I. B. Ivanov, B. Campbell, "Effects of electrolyte concentration and pH on the coalescence stability of β-lactoglobulin emulsions: Experiment and interpretation", *Langmuir* **2005**, *21*, 4842-4855.

42. P. S. Denkova, S. Tcholakova, N. D. Denkov, K. D. Danov, B. Campbell, C. Shawl, D. Kim, "Evaluation of the precision of drop-size determination in oil/water emulsions by low resolution NMR spectroscopy", *Langmuir* **2004**, 20, 11402-11413.

43. S. Tcholakova, N. D. Denkov, I. B. Ivanov, R. Marinov, "Evaluation of short-term and long-term stability of emulsions by centrifugation and NMR", *Bulg. J. Phys.* **2004**, *31*, 96-110.

44. S. Tcholakova, N. D. Denkov, I. B. Ivanov and T. Danner, "Main factors controlling the emulsification process under turbulent conditions. Experiment and data interpretation", 21st *ICTAM*, Warsaw, **2004**, Reference FM8S_11669.

45. S. Tcholakova, N. D. Denkov, T. Danner, "Role of surfactant type and concentration for the mean drop size during emulsification in turbulent flow", *Langmuir* **2004**, *20*, 7444-7458.

46. S. Tcholakova, N. D. Denkov, D. Sidzhakova, I. B. Ivanov, B. Campbell, "Interrelation between drop size and protein adsorption at various emulsification conditions", *Langmuir* **2003**, *19*, 5640-5649.

47. S. Tcholakova, N. D. Denkov, I. B. Ivanov, B. Campbell, "Coalescence in protein stabilized emulsions", *Third World Congress on Emulsions,* Lyon **2002**, Reference 200.

48. N. D. Denkov, S. Tcholakova, I. B. Ivanov, B. Campbell, "Methods for evaluation of emulsion stability at a single drop level", *Third World Congress on Emulsions,* Lyon **2002**, Reference 198.

49. S. Tcholakova, N. D. Denkov, I. B. Ivanov, B. Campbell, "Coalescence in β-lactoglobulin-stabilized emulsions: Effects of protein adsorption and drop size", *Langmuir* **2002**, *18*, 8960-8971.

50. I. B. Ivanov, E. Basheva, Th. D. Gurkov, A. Hadjiiski, L. Arnaudov, N. Vassileva, S. Tcholakova, B. Campbell, "Stability of oil-in-water emulsions containing protein", in "*Food Colloids: Fundamentals of formulation",* eds. E. Dickinson and R. Miller, Royal Society of Chemistry, Cambridge, **2001**, pp. 73-90.

51. S. Tcholakova, N. D. Denkov, R. Borwankar, B. Campbell, "Van der Waals interaction between two truncated spheres covered by a uniform layer (deformed drops, vesicles, or bubbles)", *Langmuir* **2001**, *17*, 2357-2362.

(B) **Foams: formation, stability, rheology** (experimental studies and theoretical models for predicting the foamability, stability against Ostwald ripening and foam rheology).

52. F. Mustan, N. Politova-Brinkova, Z. Vinarov, D. Rossetti, P. Rayment, S. Tcholakova, Interplay between bulk aggregates, surface properties and foam stability of nonionic surfactants. *Adv. Colloid Interface Sci.* 302 (**2022**) 102618; doi: 10.1016/j.cis.2022.102618

53. T.Arnaudova, Z.Mitrinova, N.Denkov, D.Growney, R.Brenda, S.Tcholakova, Foamability and Foam Stability of Oily Mixtures. *Colloids Surf. A* (**2022**) 129987; doi: 10.1016/j.colsurfa.2022.129987

54. F. Mustan, N. Politova-Brinkova, D. Rossetti, P. Rayment, S. Tcholakova, Oil soluble surfactants as efficient foam stabilizers. *Colloids Surf. A* 633 (**2022**) 27874; doi: 10.1016/j.colsurfa.2021.127874

55. B. Petkova, S. Tcholakova, N. Denkov, Foamability of Surfactant Solutions: Interplay Between Adsorption and Hydrodynamic Conditions, *Colloids Surf. A* **626** (2021) 127009; doi: 10.1016/j.colsurfa.2021.127009

56. N. Denkov, S. Tcholakova, N. Politova-Brinkova, Physicochemical Control of Foam Properties. *Curr. Opin. Colloid Interface Sci.* **50** (2020) 101376; doi: 10.1016/j.cocis.2020.08.001

57. B. Petkova, S. Tcholakova, M. Chenkova, K. Golemanov, N. Denkov, D. Thorley, S. Stoyanov, Foamability of Aqueous Solutions: Role of Surfactant Type and Concentration. Adv. Colloid Interface Sci. 276 (**2020**) 102084; doi: 10.1016/j.cis.2019.102084

58. N. Politova, S. Tcholakova, Zh. Valkova, K. Golemanov, N. D. Denkov. "Self-regulation of foam volume and bubble size during foaming via shear mixing" *Colloids Surf. A* **2018,** *539*, 18–28.

59. S. Tcholakova, F. Mustan, N. Pagureva, K. Golemanov, N. D. Denkov, E. G. Pelan, S. D. Stoyanov. "Role of surface properties for the kinetics of bubble Ostwald ripening in saponin-stabilized foams" *Colloids Surf. A* **2017,** *534*, 16–25.

60. N. Pagureva, S. Tcholakova, K. Rusanova, N. Denkov, T. Dimitrova, „Factors Affecting the Coalescence Stability of Microbubbles", *Colloids Surf. A* **2016**, *508*, 21-26.

61. Z. Mitrinova, S. Tcholakova, N. Denkov, K.P. Ananthapadmanabhan, "Role of interactions between cationic polymers and surfactants for foam properties" *Colloids Surf. A* **2016**, *489*, 378-391.

62. Z. Mitrinova, S. Tcholakova, K. Golemanov, N. Denkov, M. Vethamuthu, K.P. Ananthapadmanabhan. "Surface and Foam Properties of SLES + CAPB + Fatty Acid Mixtures: Effect of pH for C12–C16 Acids", *Colloids Surf. A* **2013**, *438*, 186-198.

63. R. Petkova, S. Tcholakova, N.D. Denkov, "Role of Polymer–Surfactant Interactions in Foams: Effects of pH and Surfactant Head Group for Cationic Polyvinylamine and Anionic Surfactants", *Colloids Surf. A* **2013**, *438*, 174-185.

64. N. Denkov, S. Tcholakova, R. Hohler, S. Cohen-Addad, "Foam Rheology", In "*Foam Engineering"*, Stevenson, P., Ed.: Marcel Dekker: New York, **2012**, Chapter 6, pp 91-120.

65. N. Politova, S. Tcholakova, K. Golemov, N.D. Denkov, M. Vethamuthu, K.P. Ananthapadmanabhan, "Effect of Cationic Polymers on Foam Rheological Properties", *Langmuir* **2012**, *28*, 1115−1126.

66. R. Petkova, S. Tcholakova, N. D. Denkov, "Foaming and foam stability for mixed polymer-surfactant solutions: Effects of surfactant type and polymer charge", *Langmuir,* **2012**, *28*, 4996−5009.

67. S. Tcholakova, Z. Mitrinova, K. Golemanov, N. D. Denkov, M. Vethamuthu, K.P. Ananthapadmanabhan, "Control of Ostwald Ripening by Using Surfactants with High Surface Modulus" *Langmuir* **2011**, *27*, 14807–14819.

68. N. D. Denkov, S. Tcholakova, K. Golemanov, T. Hu, and A. Lips, "Theoretical model of viscous friction inside steadily sheared foams and concentrated emulsions", *Amer. Inst. Physics Conference Proceedings*, **2008**, *1027*, 902-904

69. N. D. Denkov, S. Tcholakova, K. Golemanov, A. Lips, "Jamming in Sheared Foams and Emulsions, Explained by Critical Instability of the Films between Neighboring Bubbles and Drops", *Phys. Rev. Letters* **2009**, *103*, 118302.

70. N. Denkov, S. Tcholakova, K. Golemanov, K. P. Ananthpadmanabhan A. Lips, "Role of surfactant type and bubble surface mobility in foam rheology" *Soft Matter* **2009**, *7*, 3389-3408.

71. K. Golemanov, N. D. Denkov, S. Tcholakova, M. Vethamuthu, A. Lips, "Surfactant mixtures for control of bubble surface mobility in foam studies" *Langmuir* **2008**, *24*, 9956-9961.

72. N. D. Denkov, S. Tcholakova, K. Golemanov, K.P. Ananthapadmanabhan, A. Lips, "Viscous friction in foams and concentrated emulsions under steady shear", *Phys. Rev. Letters* **2008**, *100*, 138301.

73. N. D. Denkov, S. Tcholakova, K. Golemanov, V. Subramanian, A. Lips, "Foam-wall friction: Effect of air volume fraction for tangentially immobile bubble surface", *Colloid Surf. A* **2006**, *282-283*, 329-347.

(C) **Biophysics of food digestion and oral drug delivery** (mechanisms of fat digestions and drug delivery: role of surfactants, fatty acids and phospholipids)

74. V. Katev, S. Tsibranska-Gyoreva, Z. Vinarov, S. Tcholakova, Supersaturation and Solubilization upon In Vitro Digestion of Fenofibrate Type I Lipid Formulations: Effect of Droplet Size, Surfactant Concentration and Lipid Type. *Pharmaceutics* 13 (**2021**) 1287; doi: 10.3390/pharmaceutics13081287

75. V. Katev, Z. Vinarov, S. Tcholakova, Mechanisms of Drug Solubilization by Polar Lipids in Biorelevant Media, *Eur. J. Pharm. Sci.* **159** (2021) 105733; doi: 10.1016/j.ejps.2021.105733

76. V. Gugleva, S. Titeva, N. Ermenlieva, S. Tsibranska, S. Tcholakova, S. Rangelov, D. Momekovc, Development and Valuation of Doxycycline Niosomal Thermoresponsive in situ Gel for Ophthalmic Delivery. *International J. Pharmaceutics* 591 (**2020**) 120010. doi: 10.1016/j.ijpharm.2020.120010.

77. Z. Vinarov, G. Gancheva, N. Burdzhiev, S. Tcholakova, Solubilization of Itraconazole by Surfactants and Phospholipid-Surfactant Mixtures: Interplay of Amphiphile Structure, pH and Electrostatic Interactions. J. Drug Deliv. Sci. Technol. 57 (**2020**) 101688; doi: 10.1016/j.jddst.2020.101688.

78. Z. Vinarov, V. Katev, N. Burdzhiev, S. Tcholakova, N. Denkov. "Effect of Surfactant−Bile Interactions on the Solubility of Hydrophobic Drugs in Biorelevant Dissolution Media". *Mol. Pharmaceutics* **2018**, *15*, 5741−5753; doi: 10.1021/acs.molpharmaceut.8b00884.

79. Z. Vinarov, D. Radeva, V. Katev, S. Tcholakova, N. Denkov. "Solubilisation of Hydrophobic Drugs by Saponins" *Ind. J. Pharm. Sci.* **2018**, *80*, 709−718

80. Z. Vinarov, G. Gancheva, V. Katev, S. Tcholakova. "Albendazole Solution Formulation via Vesicle-To-Micelle Transition of Phospholipid-Surfactant Aggregates" *Drug. Dev. Ind. Pharm.* **2018** doi: 10.1080/03639045.2018.1438461

81. Z. Vinarov, V. Katev, D. Radeva, S. Tcholakova, N. Denkov. "Micellar Solubilization of Poorly Water-soluble Drugs: Effect of Surfactant and Solubilizate Molecular Structure". *Drug. Dev. Ind. Pharm.* **2018**, doi: 10.1080/03639045.2017.1408642

82. Z. Vinarov, P. Dobreva, S. Tcholakova. "Effect of Surfactant Molecular Structure on Progesterone Solubilization". *J. Drug. Deliv. Sci. Tec.* **2018**, *43*, 44–49.

83. K. Stoyanova, Z. Vinarov, S. Tcholakova. "Improving Ibuprofen Solubility by Surfactant-Facilitated Self-Assembly into Mixed Micelles", *J. Drug. Deliv. Sci. Tec.* **2016**, *36*, 208–215.

84. L. Vinarova, Z. Vinarov, S. Tcholakova, N. D. Denkov, S. Stoyanov, A. Lips, "Mechanism of lowering cholesterol absorption by calcium studied by in vitro digestion model" *Food & Function* **2016**, *7*, 151-163.

85. L. Vinarova, Z. Vinarov, V. Atanasov, I. Pantcheva, S. Tcholakova, N. Denkov, S. Stoyanov "Lowering of Cholesterol Bioaccessibility and Serum Concentrations by Saponins: in Vitro and in Vivo Studies" *Food & Function* **2015**, *6*, 501–512.

86. L. Vinarova, Z. Vinarov, B. Damyanova, S. Tcholakova, N. Denkov, S. Stoyanov, "Mechanisms of Cholesterol and Saturated Fatty Acid Lowering by Quillaja saponaria Extract, Studied by in vitro Digestion Model" *Food & Function* **2015**, *6*, 1319–1330.

87. Z. Vinarov, L. Petrova, S. Tcholakova, N. Denkov, S. Stoyanov, A. Lips, "*In vitro* study of triglyceride lipolysis and phase distribution of reaction products and cholesterol: effects of calcium and bicarbonate" *Food & Function* **2012**, *3*, 1206.

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