

RESUME - Avi Shpigelman, PhD

Date and place of birth: 19/12/1980 Kishiniov, former Soviet Union

Marital status: Married +2

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ACADEMIC DEGREES

2012, PhD in Biotechnology, Technion IIT.

2008, MSc (Cum Laude) in Biotechnology and Food Engineering, Technion IIT.

2002, BSc in Food Engineering and Biotechnology, Technion IIT.

ACADEMIC APPOINTMENTS

10/2014 – Present Assistant Professor, Dept. of Food Engineering and Biotechnology, Technion- Israel Institute of Technology, Haifa, Israel

2012-2014 Post-Doctoral Researcher with Prof. Marc Hendrickx and Prof. Ann Van Loey, Laboratory of Food Technology, Dept. Microbial and Molecular systems (M2S), KULeuven, Heverlee, Belgium

2008-2012 Teaching Assistant, Dept. of Food Engineering and Biotechnology, Technion- Israel Institute of Technology, Haifa, Israel

RESEARCH INTERESTS

- Novel Processing Technologies
- Food bioactives (polyphenols, vitamins etc.) and their stability during the different production stages from “farm to fork”
- Processing induced modifications of biopolymers
- The process-structure-function relation of fruit and vegetable based system
- Food production waste reduction and utilization

TEACHING EXPERIENCE

2008-2012 Teaching assistant “Thermodynamics in Food Engineering” and “Food Engineering Principles-part 3” (undergraduate)

2008-2012 Undergraduate students guide in their final undergraduate project

2008 Teaching assistant “Laboratory for Materials and Biological Processes Engineering” (undergraduate)

FELLOWSHIPS, AWARDS and HONORS

(Year, honor – list prizes, awards, or important nominations)

2006 Jacobs Excellence Scholarship

2008 Excellence Award in Memory of Prof. Arieh Litan

2009-2012 Vatav (Israel National Planning and Budgeting Committee of high education) “interdisciplinary technologies” scholarship

2012-2013 KULeuven research fund F+ fellowship

2012-2014 ISEF foundation fellowship

2013-2014 European Union Erasmus Mundus Action 2 (EMAIL II) fellowship

GRADUATE STUDENTS

Theses in Progress (The students are co-supervised by Avi Shpigleman)

Zahra Jamsazzadeh Kermani, expected 2015, Process structure function relations of pectin in plant based food systems, Primary supervisor – Prof. Marc Hendrickx.

Hai Nguyen Hoang, expected 2015, Processing, food (micro)structure and physical functionality of mango-based juices. Primary supervisor – Prof. Ann Van Loey.

PUBLICATIONS

Theses

2008 (MSc) Mechanisms of Saccharide Effect on PNIPA Behavior in Aqueous Media as a Model for Water-Saccharide-Protein Systems

2012 (PhD) Nano-Delivery by Beta-Lactoglobulin, and Protection of EGCG from Green Tea, for Preventive Medicine

Refereed papers in professional journals

(* Graduate students co-supervised by Avi Shpigelman; ^ Undergraduate students co-supervised by Avi Shpigelman)

- 1) **Avi Shpigelman**, Irina Portnaya, Ory Ramon, Yoav D. Livney **Saccharide-structure effects on poly N-isopropylacrylamide phase transition in aqueous media; Reflections on protein stability**. Journal of Polymer Science Part B: Polymer Physics (2008) Vol. 46, Issue 21, 2307-2318
- 2) **Avi Shpigelman**, Gal Israeli[^], Yoav D. Livney **Thermally-Induced Protein-Polyphenol Co-Assemblies: Beta lactoglobulin-Based complexes as Protective Nanovehicles for EGCG**. Food Hydrocolloids (2010) Vol. 24 Issue 8, 735-743.
- 3) **Avi Shpigelman**, Yaron Paz, Ory Ramon and Yoav D. Livney **Isomeric sugar effects on thermal phase transition of aqueous PNIPA solutions, probed by ATR-FTIR spectroscopy; insights to protein protection by sugars**. Colloid and Polymer Science (2011) Vol. 289, Issue 3, 281-290
- 4) Nurit Manukovsky, **Avi Shpigelman**, Ravit Edelman, Yoav D. Livney **Hydration-mediated effects of saccharide stereochemistry on poly(N-isopropylacrylamide) gel swelling**. Journal of Polymer Science Part B: Polymer Physics (2011) Vol. 49, Issue 7, 523-530
- 5) **Avi Shpigelman**, Yifat Cohen[^], Yoav D. Livney **Thermally-induced β -lactoglobulin- EGCG nanovehicles: loading, stability, sensory and digestive-release study**. Food Hydrocolloids (2012) Vol. 29, Issue 1, 57-67
- 6) Uri Cogan, **Avi Shpigelman**, Irina Protania, Yosef Scolnik, Meir Shinitzky **Intermolecular Chiral assemblies in R (-) and S (+) 2-Butanol Detected by Microcalorimetry Measurements**. Chirality (2012) Vol 24, Issue 7, 500-505.
- 7) **Avi Shpigelman**, Adi Zissapel[^], Yifat Cohen[^], Yoav D. Livney **Mechanisms of saccharide protection against epigallocatechin-3-gallate deterioration in aqueous solutions**. Food Chemistry (2013) Vol. 139, Issue 1-4, 1105-1112

- 8) **Avi Shpigelman**, Clare Kyomugasho, Stefanie Christiaens, Ann M Van Loey, Marc E. Hendrickx. **Thermal and high pressure high temperature processes result in distinctly different pectin non-enzymatic conversions.** *Food Hydrocolloids*(2014). Vol. 39, 251-263
- 9) Sunny George Gwanpua, Sandy Van Buggenhout, Bert E. Verlinden, Stefanie Christiaens, **Avi Shpigelman**, Victor Vicent, Zahra Jamsazzadeh Kermani, Bart M. Nicolai, Marc Hendrickx, Annemie Geeraerd **Pectin modifications and the role of pectin-degrading enzymes during postharvest softening of Jonagold apples.** *Food Chemistry* (2014), Vol. 158, 283-291.
- 10) **Avi Shpigelman**, Yanai Shoham[^], Gal Israeli-Lev, Yoav D. Livney **β -lactoglobulin-Naringenin complexes: Nano-Vehicles for the delivery of a hydrophobic Nutraceutical** *Food Hydrocolloids* (2014). Vol. 40, 214-224
- 11) Zahra Jamsazzadeh Kermani*, **Avi Shpigelman**, Sandy Van Buggenhout, Mohsen Ramezani, Ann M Van Loey, Marc E. Hendrickx. **The impact of extraction with a chelating agent under acidic condition on the cell wall polymers of mango peel.** *Food Chemistry* (2014), Vol. 161, 199-207
- 12) Zahra Jamsazzadeh Kermani*, **Avi Shpigelman**, Ken Houben, Belinda ten Geuzendam, Ann M Van Loey, Marc E. Hendrickx. **Study of mango endogenous pectinases as a potential tool to engineer mango purée consistency.** *Food Chemistry* (2014), Vol. 172, 272-282.
- 13) Daniel M. Njoroge, Peter K. Kinyanjui, Anselimo O. Makokha, Stefanie Christiaens, **Avi Shpigelman**, Daniel N. Sila, Marc E. Hendrickx. **Extraction and characterization of pectic polysaccharides from easy- and hard-to-cook common beans (*Phaseolus vulgaris*).** *Food Research International* (2014). Vol. 64, 314-322

Accepted (or in press) papers:

- 14) **Avi Shpigelman**, Clare Kyomugasho, Stefanie Christiaens, Ann M Van Loey, Marc E. Hendrickx. **The effect of high pressure homogenization on pectin: Importance of pectin source and pH.** *Food Hydrocolloids*(2014). (10.1016/j.foodhyd.2014.05.019)

- 15) Ashwin K Sankaran, Jaap Nijse, Lucy Bialek, **Avi Shpigelman**, Marc E. Hendrickx, Ann M. van Loey. **Enhanced electrostatic interactions in tomato cell suspensions.** *Accepted by Food Hydrocolloids.*

Patents Pending

Y. D. Livney and **A. Shpigelman**, Thermally-induced protein- polyphenol co-assemblies. (provisional US patent application 61/393,901 17.10.2010)

CONFERENCES

Plenary, keynote or invited talks

(Speaker name underlined)

- 1) **Avi Shpigelman**, Irina Portnaya, Ilya Kusner, Ory Ramon & Yoav D. Livney, Saccharide-Structure Effect on Protein Behavior in Aqueous Media, Using PNIPA as a Model for Protein ***UKPCF2007: International Conference on Polymer Colloids***, Warwick University, England, Sept. 2007 (contributed)
- 2) **Avi Shpigelman.**, Irina Portnaya, Ilya Kusner, Ory Ramon & , Yoav D. Livney, Saccharide-Structure Effect on PNIPA Behavior in Aqueous Media, ***19th Polymer Networks Group Meeting*** Cyprus, 22-26 June 2008 (contributed)
- 3) **Avi Shpigelman**, Gal Israeli, Yoav D. Livney, Heat Induced β -lactoglobulin based nanoparticles as novel protective carriers for EGCG in clear beverages. ***3rd International Symposium on Delivery of Functionality in Complex Food Systems***, Wageningen, the Netherlands, October 2009 (contributed)
- 4) **Avi Shpigelman**, Yoav D. Liveny, *Food Nanotechnology: Delivering Health, Inspired by Nature. (Invited lecture Strauss Group)*, Petah Pikva, Israel, December 2009

- 5) **Avi Shpigelman**, Gal Israeli, Yifat Haviv and Yoav D. Livney. Heat-Induced β -Lactoglobulin-Based Nanoparticles as Novel Protective Carriers for EGCG in Clear Beverages. ***Food In The New Era***, Tel –Aviv, Israel. June 2010. (contributed)
- 6) **Avi Shpigelman**, Gal Israeli and Yoav D. Livney. Heat-Induced β -Lactoglobulin-Based Nanoparticles as Novel Protective Carriers for EGCG in Clear Beverages. ***The 4th European Workshop on Food Engineering and Technology***. Faculty of Agriculture, University of Belgrade, Belgrade, Serbia. May 2010. (*plenary*)
- 7) **Ashwin K Sankaran**, Jaap Nijssse, Lucy Bialek, **Avi Shpigelman**, Marc E. Hendrickx , Ann M. van Loey. Pectins, the versatile polysaccharide in plant based foods. 12th International Hydrocolloids Conference Taipei, Taiwan, 5-9 May 2014. (contributed)