

CURRICULUM VITAE

1. Personal

Date of birth: Oct. 26, 1959

Country of birth: Israel

ID number: 056112592

Family status: married

Number of children: 2

Permanent address: 345 Ha'Brosh St. Shtulim, 7928000, Israel

Work address: Department of Fruit Trees Sciences, ARO, The Volcani Center, 68 HaMaccabim Rd. Rishon Le'Zion 7528809, Israel

Home phone number: 08-8648459

Work phone number: 03-9683343

Fax number: 03-9669583

e-mail: vhasadka@volcani.agri.gov.il

2. Higher education

1981 – 1984	B.Sc. in Life Sciences at Tel-Aviv University
1984 – 1987	M.Sc. in Botany at Tel-Aviv University Title of thesis: Further characterization and purification of an inhibitor of virus replication (IVR) Supervision by: Prof. Gad Loebenstein; # 1
1987 – 1992	Ph.D. in Biochemistry at The Weizmann Institute of Science Title of thesis: Salt adaptation of <i>Dunaliella salina</i> : isolation, characterization and partial cloning of a novel plasma membrane glycoprotein Supervision by: Prof. Ada Zamir; # 2, 3
1992 – 1995	Postdoctoral fellowship at Texas A & M University, Department of Biochemistry & Biophysics. Host: Prof. John Mullet Research subject: Gene Regulation by Sugar and Phosphate. # 4,5,6

3. Appointments at the Hebrew University

1997 to date	External teacher, The Robert H. Smith Faculty of Agriculture, Food and Environment Title of the course: Fruit set and Development (Graduate students)
2003 to date	External teacher, The Robert H. Smith Faculty of Agriculture, Food and Environment Title of the course: The Biology of Citrus and Subtropical Trees (Undergraduate students)
2015, 2019	External teacher, The Robert H. Smith Faculty of Agriculture, Food and Environment Title of the course: Reproductive Biology of Fruit Crops (International Master Program)

5. Service in other Academic and Research Institutes

1995 to date	Research Scientist at the ARO, The Volcani Center, Institute of Plant Sciences. Promoted to Rank B in 2002; Rank A in 2017
2007-2011	Head, Department of Fruit Trees Sciences, ARO
2002 – 2003	Sabbatical leave at University of California, Davis with Prof. Eduardo Blumwald Research subject: Citrus fruit acidity
2016 – 2017	Sabbatical leave at University of California, Davis with Prof. Eduardo Blumwald Research subject: Climacteric versus non-climacteric fruit ripening

6. Other activities

Editorial responsibilities:

2012	Chief Editor, <i>Acta Hort, Proceedings of the International CIPA Conference</i>
2013-date	<i>Plant Science</i> Editorial Board, Member
2014-date	<i>The Horticultural Journal</i> (formerly, <i>J. Japanese Society Hort. Sci.</i>), Editor

Membership in professional societies

The Israeli Society of Plant Sciences
The International Society of Citriculture
The International Society of Horticulture

Organization of international conferences

1998	Scientific Organizing Committee, The 1 st International Symposium on Citrus Biotechnology; Place: Eilat, Israel
2009	International Advisory Committee, The 11 th International Citrus Congress; Place Wuhan, China
2009	International Scientific Committee, The 2 nd International Symposium on Citrus Biotechnology; Place: Catania, Italy
2012	The Organizing Committee, The 12 th International CIPA Conference; Place: Tel Aviv, Israel
2015	Co-Convener in an international workshop: Alternate Bearing and Flowering control in Fruit Trees (as part of The Annual Monselise and Bar-Akiva Memorial Symposium in Horticulture); Place: Rehovot, Israel
2019	Co-Convener, XI International Symposium on Protected Cultivation in Mild Winter Climates & I International Symposium on Nettings and Screens in Horticulture; Place, Tenerife, Spain

Organization of national conferences

2009	Convener, Israeli citrus Growers Research Report Meeting
2013	Convener of The Annual Monselise and Bar-Akiva Memorial Symposium in Horticulture: Fruit Flavor and Aroma: From Fruit Chemistry to Human Sensing; Place: Bet Dagan, Israel
2018	Co-Convener, Smart Agriculture in the Orchard; Place: Rishon Le'zion, Israel

Service in funding and other agencies

1997-2002	Citrus Research Stirring Committee, Northern R&D, Chair
1999-2002	Citrus Research Stirring Committee, Northern Valley R&D, Chair
1999-2013	Citrus Research Board, Member
2004-2007	The Chief Scientist of the Ministry of Agriculture and Rural Development Research Pre-proposals Evaluation Committee, Citrus Growing Sub-Panel, Member
2005-2006	BARD proposal evaluation panel; Member
2005-2006	The Chief Scientist of the Ministry of Agriculture and Rural Development Research Proposals Evaluation Committee, Biotechnology Panel, Member
2005-2008	The Chief Scientist of the Ministry of Agriculture and Rural Development Research Proposals Evaluation Committee, Plant Science Panel, Member

2007-2013	The Chief Scientist of the Ministry of Agriculture and Rural Development Research Pre-proposals Evaluation Committee, Citrus Growing Panel, Member
2008	BARD proposal evaluation panel; Chair
2007 to 2010	New Citrus Cultivars Committee, Member
2012-2016	The ARO Strategic Committee; Co-Chair
2014	BARD proposal evaluation panel; Member
2014 to date	The Monselise and Bar-Akiva Memorial Foundation, Board Member
2015 to date	R&D Committee, The Citrus Division, The Plant Production Board
2019	Vice Chair, ISHS Working Group, Protected cultivation, nettings and screens for mild climates

Courses in academic institutions abroad

2014	External lecturer, Huazhong Agricultural University, Wuhan, China Title of the course: Fruit Development (Graduate and undergraduate students)
2017-date	External lecturer, University of California, Davis Title of the course: Fruit Development and Metabolic Adaptations (Plant Biology Graduate Program)

Ad hoc reviewing of manuscripts for the following scientific journals:

Front. Plant Sci., Hort. Res., JEXBot, Plant Grow. Reg., Plant Mol. Biol., Physiol. Plant, Planta, Plant Physiology, Plant Sciences, Sci. Hort., Sci. Rep., Tree Physiol.

Ad hoc reviewing of research proposals for the following granting agencies:

BARD, The Chief Scientist of the Ministry of Agriculture and Rural Development, NSF, Ministry of Science, ISF, BSF

7. Research grants

Period	Funding source	Subject and collaborators	Total amount	Articles
1996-1999:	USA-Israel Bi-National Agricultural Research and Development (BARD)	Molecular biology of citric acid accumulation in citrus fruit, AS (PI), Mikeal Roose (Co-PI)	\$150K/300K	8-9, 15
1996-2000:	Citrus Board	Controlling citrus fruit acid levels by genetic manipulation, AS (PI)	\$57K/57K	10
1996:	Citrus Board	Quality improvement in citrus fruit by manipulating sugar content using genetic engineering, AS (PI)	\$10K/10K	1 (others), 3 (others)
1996-1997:	Citrus Board	Dwarfing in high-planting system by irrigation regime, AS (PI)	\$7.5K/7.5K	
1999-2001:	Northern R&D	Reducing acid level in Minneola Tangelo and easy peelers by iron treatment, AS (PI)	\$9K/9K	20
1999:	Northern R&D	Reducing canopy temperature by spray irrigation, AS (PI)	\$3K/3K	
2000-2003:	Northern R&D	Reducing canopy temperature by spray irrigation, Kaolin spray and shedding, AS (PI), Shabtai Cohen (Co-PI)	\$5K/8K	
2002-2005:	Chief Scientist, Ministry of Ag & Rural Dev. (Chief Scientist)	The use of triazole to mitigate salinity effects in citrus, AS (PI)	\$60K/60K	
2002-2005:	Chief Scientist	Identification and isolation of ovary and pulp specific elements from a gene expressed in acid fruit, AS (PI)	\$105K/105K	25

2004-2007:		BARD	Citric acid metabolism and mobilization in citrus fruit, AS (PI), Eduardo Blumwald (Co-PI)	\$162K/310K	18,19,23, 2 (others)
2005-2008		Citrus Board	The involvement of transport mechanisms in the control of citrus fruit acidity, AS (PI)	\$60K/60K	11,18
2005-2008		Citrus Board	The use of plastic mulches to efficiency water use. AS (PI)	\$45K/45K	
2005		ARO Director Fund	Generating EST libraries from citrus, AS (PI)	\$50K/60K	
2006-2009		Chief Scientist	Controlling citrus fruit acidity by manipulating aconitase activity, AS (PI)	\$75K/75K	23,4 (others), 5 (others) 7 (others)
2007-2011		BARD	Sugar and acid homeostasis in citrus fruit, AS (PI), Eduardo Blumwald (Co-PI)	\$165K/310K	20,22,24
2007-2013		Chief Scientist	The effect of colored netting in Or1 easy peeler, AS (PI), Yosepha Shahak, Shabtai Cohen (Co-PIs)	72K/72K	9 (others),10 (others)
2009-2015		Chief Scientist	Alternate bearing in citrus: study of factors which are changed between ON and OFF years, AS (PI)	\$180K/180K	26,27,29,31
2012-2015		Chief Scientist	The effect of long term irrigation with reclaimed water on citrus performance, Asher Bar-Tal (PI, AS (Co-PI)	\$24K/309K	35
2012-2015		Citrus Board	Inducing fruit acidity of Odem mandarin, AS (PI)	\$75K/75K	
2014-2019		PepsiCo, LTD (through Earthbound, LLC)	Color nettings and water use efficiency in citrus, AS (PI), Yosepha Shahak, Shabtai Cohen (Co-PIs)	\$495K/495K	37,13 (others)
2015-2019		Chief Scientist	Identification of the genetic basis of quality determinants in easy peelers, Amir Sherman (PI), AS (Co-PI)	\$42K/561K	
2015-2018		Citrus Board	Solving fruit roughness problem in Ori1 mandarin, AS (PI)	\$30K/48K	
2016		PepsiCo, LTD (through Earthbound, LLC)	Consulting for an experiment aimed at examining the effect of photo-selective netting on juice-oranges in Florida AS (PI), Yosepha Shahak (Co-PI)	\$12.5K/25K	
2017-2020		Chief Scientist	Identification of the factor which blocks flowering following heavy fruit load in citrus and olive, AS (PI), Alon Samach (Co-PI)	\$84K/141K	26
2018-2021		Chief Scientist	Development of a model to predict climate effects on citrus splitting, and development of a protocol to mitigate its effects, AS (PI)	\$150K/190K	33
2019-2022		Citrus Board	GA treatments during flowering induction to induce productivity in Ori mandarin, AS (PI)	\$50K/50K	12 (others)
2019-2022		Citrus Board	Development of a model to predict climate effects on citrus splitting, and development of a protocol to mitigate its effects, AS (PI)	\$50K/50K	33

8. Teaching at the Hebrew University

a) Supervision of Master's and doctoral degree students

Master students

2003-2006	Gabriel Bardosh, "Isolation and analysis of a pulp-specific promoter from citrus", Prof. E. Goldschmidt, #25
2003-2006	Adi Mondshine, "Sucrose metabolism in citrus fruits: invertase expression in the juice sacs", Co-supervisors: Prof. E. Goldschmidt and Prof. R. Goren
2006-2008	Alina Sorokin, "Analysis of an ovary, anther and pulp specific promoter from citrus in tomato, Co-supervisor: Prof. E. Goldschmidt, #25
2007-2009	Yishai Wachsmann, "The effect of color nets on the physiology, yield and water use in citrus easy peeler variety Or1", Co-supervisors: Prof. U. Shani and Dr. Shabtai Cohen, #9 (others), #10 (others), #13 (others)
2007-2009	Revital Akerman-Rosenfeld, "Endogenic factors affecting 'Hass' avocado hormonal homeostasis and fruit size", Co-supervisor: Dr. Vered Irihimovitch

2007- 2009	Ravit Goldberg-Moeller, "Changes in gene expression during induction and differentiation of reproductive buds in the mandarin Or1 following gibberellin treatment", Co-supervisor Prof. R. Goren, #27
2008-2010	Asfaw Degu, "Regulation of citrate accumulation in citrus fruit", #23, 7 (others)
2008-2010	Liron Shalom, "Alternate bearing in citrus: characterization of changes in gene expression between ON and OFF years", #26
2010-2012	Ifat Bar Chaim, "Characterization of tomato plants altered in the expression of a gene homologous to <i>C1111</i> gene from citrus pulp", #25
2010- 2012	Michal Sabag, "Study of the mechanisms affecting cell division and fruit size in 'Hass' avocado", Co-supervisor: Dr. Vered Irihimovitch, #28
2013-2014	Diriba Bane, "Effect of Photo-selective nets on water relations, productivity and fruit quality in Valencia oranges", Co-supervisor: Dr. Shabtai Cohen, #13 (others)
2013-2015	Yasmin Levi, "Determination of physiological factors playing a role in alternate bearing in citrus"
2017	Sivan Samuels, "Alternate Bearing in Citrus: identification and characterization of endogenous factors altered in ON trees following fruit thinning", #26, 29
2017	Ilya Dvojek, "Photo-selective netting and water use efficiency in citrus", Co-supervisor: Dr. Shabtai Cohen, #13 (others)
2018-date	Dor Haim, "Alternate bearing in citrus"
2018-date	Yehuda Ben-Tovim, "Fruit splitting in citrus"

Doctoral students

1999-2003	Ran Kapri, "Structure-function analysis of the enzyme phosphofructokinase from citrus fruit", Co-supervisor: Prof. R. Goren and Prof Uri Zehavi, #1 (others), 3 (others)
2007-2012	Iron Shalom, "Isolation, characterization and regulation of the <i>SPL</i> gene from citrus, and its effect on flowering and alternate bearing", #26, 27, 29, 31
2018-date	Siwar Assili, "Juice sac development"

b) Post-doctoral fellows and visiting scientists

Dr. Ken Marsh, 1999-2000, #8,
Dr. Yong Zhong Liu, 2010-2011, #25
Dr. Vijay Bahadur, 2014-2015

c) Courses Taught by Candidate (5 last years)

2013-2014	71410; Biology and production of citrus and subtropical trees, Bachelor's 71933; Fruit set and development, Master's and Doctorate's
2014-2015	71410; Biology and production of citrus and subtropical trees, Bachelor's 73928; Reproductive biology of fruit crops, Master's
2015-2016	71410; Biology and production of citrus and subtropical trees, Bachelor's
2016-2017	Sabbatical leave
2017-2018	71410; Biology and production of citrus and subtropical trees, Bachelor's 71933; Fruit set and development, Master's and Doctorate's
2018-2019	71410; Biology and production of citrus and subtropical trees, Bachelor's 73928; Reproductive biology of fruit crops, Master's

LIST OF PUBLICATIONS

1. Doctoral Dissertation

Avi Sadka (1992). Salt adaptation of *Dunaliella salina*: isolation, characterization and partial cloning of a novel plasma membrane protein. The Feinberg Graduate School, The Weizmann Institute of Science, Israel

2. Books: none

3. Books Edited

1. **Sadka, A.** (2014), Editor. Plasticulture for Green Planet. Acta Hort. 1015, ISHS, Leuven, Belgium
2. Fernandez, J.A, Del-Amor S.F. and **Sadka, A.** (2019). Protected and semi-protected agriculture under mild winter conditions. Acta Hort. In press, ISHS, Leuven, Belgium

4. Chapters in Collection

1. Zamir, A., Azachi, M., Bageshwar, U., Fisher, M., Gokhmna, I., Premkumar,, L., **Sadka, A.** and Sarchenko, I. (2004). Molecular and functional adaptations underlying the exceptional salt tolerance of the alga *Dunalliella salina*. In: Halophilic Microorganisms (A. Ventosa, ed.), pp. 165-178. Springer, Berlin, Heidelberg, Germany.
2. Francisco R., T., Javier, T., María, R. J., Concetta, L. and **Sadka, A.** (2019). Fruit growth and development. In: The Genus Citrus - From Genomes to Orchards to Consumers (F. Gmitter, M. Talon, M. Caruso, eds.), 1st Edition, Elsevier.

Review Articles

1. Hussain, S.B., Shi, C-Y, Guo, L-X, Kamran, H.M., **Sadka A.** and Liu, Y-Z (2017).Recent Advances in the Regulation of Citric Acid Metabolism in Citrus Fruit
Critical Rev Plant Sci, 36, 241-256.
2. **Sadka, A.**, Shlizerman, L., Kamara, I. and Blumwald, E. (2019) Primary metabolism in citrus fruit as affected by its unique structure. *Front Plant Sci*, 10, <https://doi.org/10.3389/fpls.2019.01167>

5. Articles

Legend:

PI – Principal Investigator; S – Student; PD – Post-doc fellow; C – Co-researcher; T – Technician/lab assistant.

*Three key articles in recent years

The numbers at the end of each article denote that impact factor; ranking of the journal in its field; and the number of citations, excluding self-citations (taken from the Web of Science).

1. Gera, A.^{PI}, **Sadka, A.**^S Spiegel, S.^C, Solomon, R.^C and Smorodinsky, N.I.^T (1989). Use of monoclonal antibodies in the purification of an inhibitor of virus replication by affinity chromatography. *J. Gen. Virology* 70: 1293-1296. 2.83; 7/24 (Virology); 8
2. **Sadka, A.**^S, Lers, A.^S, Zamir, A.^{PI} and Avron, M.^{PI} (1989). A critical examination of the role of *de novo* protein synthesis in the osmotic adaptation of the halotolerant alga *Dunaliella*. *FEBS Lett.* 244: 93-98. 3.53; 53/253 (Bioch. & Mol. Biol.); 49
3. **Sadka, A.**^S, Himmelhoch, S.^T and Zamir, A.^{PI} (1991). A 150 kilodalton cell surface protein is induced by salt in the halotolerant green alga *Dunaliella salina*. *Plant Physiol.* 95: 822-831. 4.31; 7/139 (Plant Sciences); 43
4. **Sadka, A.**^{PD}, DeWald, D.B.^S, May, G.D.^T, Park, W.D.^C and Mullet, J.E.^{PI} (1994). Phosphate modulates transcription of soybean *VspB* and other sugar-inducible genes. *Plant Cell* 6: 737-749. 9.70; 2/139; (Plant Sciences); 88
5. DeWald, D.B.^S, **Sadka, A.**^{PD} and Mullet, J.E.^{PI} (1994). Sucrose modulation of soybean *Vsp* gene expression is inhibited by auxin. *Plant Physiol.* 104: 439-444. 4.31; 7/139 (Plant Sciences); 50
6. Berger, S.^{PD}, Bell, E.^{PD}, **Sadka, A.**^{PD} and Mullet, J.E.^{PI} (1995). *Arabidopsis thaliana Atvsp* is homologous to soybean *VspA* and *VspB*, genes encoding vegetative storage protein acid phosphatases, and is regulated similarly by jasmonate, wounding, sugars, light and phosphate. *Plant Mol. Biol.* 27: 933-942. 2.85; 11/139; (Plant Sciences); 154
7. Jacob-Wilk, D.^S, Goldschmidt, E.^{EC}, Riov, J.^C, **Sadka, A.**^C and Holland, D.^{PI} (1997). Induction of a Citrus gene highly homologous to plant and yeast thi genes involved in thiamine biosynthesis during natural and ethylene-induced fruit maturation. *Plant Mol. Biol.* 35: 661-666. 2.85; 11/139 (Plant Sciences); 23
8. **Sadka, A.**^{PI}, Dahan, E.^T, Cohen, L.^T and Marsh, K.B.^C (2000). Aconitase activity and expression during the development of lemon fruit. *Physiol. Plant.* 108: 255-262. 2.46; 31/137 (Plant Sciences); 73
9. **Sadka, A.**^{PI}, Dahan, E.^T, Or, E.^C and Cohen, L.^T (2000). NADP⁺-isocitrate dehydrogenase gene expression and isozyme activity during citrus fruit development. *Plant Sci.* 158: 173-181. 1.25; 43/137 (Plant Sciences); 47
10. **Sadka, A.**^{PI}, Artzi, B.^T, Cohen, L.^T, Dahan, E.^T, Hasdai, D.^T, Tagari, E.^T and Erner, Y.^C (2000). Arsenite reduces acid content in citrus fruit, inhibits the activity of citrate synthase but induces its gene expression. *J. Amer. Soc. Hort. Sci.* 125: 288-293. IF: 0.93; Rank: 5/20 (Horticulture); 18

11. Reuveni, M^{PI}. and Sadka, A^{PI}. (2000). Isolation of vacuolar H⁺-ATPase subunit E cDNA from juice sacs of *Citrus limon* (Accession No. AF165939). *Plant Physiol.* 122: 129. 4.83; 7/137 (Plant Sciences); 0
12. Or, E^{PI}., Baybik, J.^S, Sadka, A^C. and Sacks, Y^T. (2000). Isolation of mitochondrial malate dehydrogenase and phosphoenolpyruvate carboxylase cDNA clones from grape berries and analysis of their expression pattern throughout berry development. *J. Plant Physiol.* 157: 527-534. 1.08; 59/137 (Plant sciences); 21
13. Or, E.^{PI}, Baybik, J.^T, Lavee, S.^C, Sadka, A.^C and Ogredovitch, A.^T. (2000). Isolation and characterization of two cDNA clones (Accession No. AS195866 and AS195867) encoding alcohol dehydrogenase from grape (*Vitis vinifera* cv. Perlette) from developing fruits. *Plant Physiol.* 122: 129. IF: 4.83; category: Plant Sciences; Rank: 7/137: 0
14. Or, E.^{PI}, Bayik, J.^T, Sadka, A.^C and Sacks, Y^T. (2000). Fermentative metabolism in grape berries: isolation and characterization of pyruvate decarboxylase cDNA and analysis of its expression throughout berry development. *Plant Sci.* 156: 151-158. IF: 1.25; 43/137 (Plant Sciences); 17
15. Sadka A.^{PI}, Dahan, E.^T, Or E.^C, Roose, M.L.^C and Cohen, L.^T (2001). A comparative analysis of mitochondrial citrate synthase gene structure, transcript level and enzymatic activity in low- and high-acid citrus varieties. *Austral. J. Plant Physiol.* 28: 383-390. 1.56; 33/134 (Plant Sciences); 34
16. Tang, Z.^S, Sadka A.^{PD}, Morishige, D.T.^{PD}, Mullet, J.E.^{PI} (2001). Homeodomain leucine zipper proteins bind to the phosphate response domain of the soybean *VspB* tripartite promoter. *Plant Physiol.* 125, 797-809. 5.10; 6/134 (Plant Sciences); 34
17. Azachi, M.^{PD}, Sadka, A.^S, Fisher, M.^S, Goldshlag, P.^T, Gokhman, I.^T and Zamir, A.^{PI} (2001). Salt induction of fatty acid elongase and membrane lipid modifications in the extreme halotolerant alga *Dunaliella salina*. *Plant Physiol.* 129: 1320-1329. 5.10; 6/134 (Plant Sciences); 76
18. Shimada, T.^{PD}, Nakano, R.^{PD}, Shulaev, V.^C, Sadka, A.^{PI} and Blumwald, E.^{PI} (2006). Vacuolar citrate/H⁺ symporter of citrus juice cells. *Planta* 224:472-480. 2.96; 17/147 (Plant Sciences); 35 (This was part of BARI project I acted in as PI. Cloning of the gene was co-work).
19. Katz, E.^{PD}, Fon, M.^T, Lee, Y.J.^{PD}, Phinney, B.S.^C, Sadka, A.^{PI} and Blumwald, E.^{PI} (2007). The citrus fruit proteome: insights into citrus fruit metabolism. *Planta* 226, 989-1005. 3.05; 20/152 (Plant Sciences); 61(This was part of BARD project I acted in as PI. I co-mentored EK).
20. Shlizerman, L.^T, Marsh, K.^C, Blumwald, E.^C and Sadka, A.^{PI} (2007). Iron shortage induces citric acid accumulation and reduces cytosolic aconitase activity in citrus. *Physiol. Plant.* 131, 72-79. 2.19; 34/152 (Plant Sciences); 19
21. Halaly, T.^S, Pang, X.^{PD}, Batiko, T.^T, Crane, O.^T, Keren, A.^S, Venkateswari, J.^T, Ogrodovitch, A.^T, Sadka, A.^C, Lavee, S.^C and Or, E.^{PI} (2008). Similar mechanisms might be triggered by alternative external stimuli that induce dormancy release in grape buds. *Planta* 228, 79-88. 3.08; 19/156 (Plant Sciences); 69
22. Katz, E.^{PD}, Fon, M.^T, Eigenheer, R.A.^T, Phinney, B.S.^C, Sadka, A.^{PI} and Blumwald, E.^{PI} (2010). A label-free differential quantitative mass spectrometry method for the characterization and identification of protein changes during citrus fruit development. *Proteome Sci.* 8, 68. 2.56; 35/71 (Biochemical Res. Meth.); 34; (This was part of BARD project I acted in as PI. I co-mentored EK).

23. Degu, A.^S, Hatew, B.^S, Nunes-Nesi, A.^{PD}, Schlizerman, L.^T, Zur, N.^T, Katz, E.^{PD}, Fernie, A.R.^C, Blumwald, E.^C and **Sadka, A.**^{PI} (2011). Inhibition of aconitase in citrus fruit callus results in a metabolic shift towards amino acid biosynthesis. *Planta* 234, 501-513. 3.00; 32/190 (Plant Sciences); 27
24. Katz, E.^{PD}, Boo, K.H.^{PD}, Kim, H.Y.^{PD}, Eigenheer, R.A.^{PD}, Phinney, B.S.^C, Shulaev, V.^C, Negre-Zakharov, F.^T, **Sadka, A.**^{PI} and Blumwald, E.^{PI} (2011). Label-free shotgun proteomics and metabolite analysis reveal a significant metabolic shift during Citrus fruit development. *J. Exp. Botany* 62:5367-5384. 5.36; 11/190 (Plant Sciences); 46 (This was part of BARD project I acted in as PI. I co-mentored EK).
25. Sorkina, A.^S, Bardosh, G.^S, Liu, Y-Z., Fridman, I.^S, Shlizerman, L.^T, Zur, N.^T, Or, E.^C, Goldschmidt, E.E.^C, Blumwald, E.^C and **Sadka, A.**^C (2011). Isolation of a citrus promoter and its functional analysis in isolated juice sacs and in tomato. *Plant Cell Rep.* 30:1627-1640. 2.27; 55/190 (Plant sciences); 7
26. Shalom, L.^S, Samuels, S.^S, Zur, N.^T, Shlizerman, L.^T, Zemach, H.^T, Ofir, R.^C, Blumwald, E.^C and **Sadka, A.**^{PI} (2012). Alternate bearing in citrus: changes in the expression of flowering control genes and in global gene expression in ON- versus OFF-crop trees. *PLOS ONE*, 7(10): e46930. doi:10.1371/journal.pone.0046930, 3.73; 7/56 (Multidisciplinary); 39
27. Goldberg-Moeller, R.^S, Shalom, L.^S, Shlizerman, L.^S, Samuels, S.^S, Zur, N.^T, Ophir, R.^C, Blumwald, E.^C and **Sadka, A.**^{PI} (2013). Effect of gibberellin treatment during flowering induction period on global gene expression and transcription of flowering-control genes in *Citrus* buds. *Plant Sci.* 198: 46–57. 4.11; 19/199 (Plant Sciences); 46
28. Sabag, M.^S, Ben-Ari, G.^C, Zviran, T.^C, Biton, I.^T, Goren M. ^T, Dahan, Y.^T, **Sadka A.**^C and Irihimovitch, V.^{PI} (2013). *PaKRP*, a cyclin-dependent kinase inhibitor from avocado, may facilitate exit from the cell cycle during fruit growth. *Plant Sci.* 213: 18-29. 4.11; 19/199 (Plant Sciences); 3
29. *Shalom, L.^S, Samuels, S.^S, Zur, N.^T, Shlizerman, L.^T, Faigenboim, A.^T, Blumwald, E.^C and **Sadka, A.**^{PI} (2014). Fruit load induces changes in global gene expression and in ABA and IAA homeostasis in citrus buds. *J. Exp. Bot.* 6: 3029-3044. 5.52; 12/204 (Plant Sciences); 32
30. Kim, H-Y.^S, Faruh, M. ^S, Cohen, Y.^C, Crisosto, C.^C, **Sadka, A.**^C and Blumwald, E.^{PI}. (2015). Non-climacteric ripening and sorbitol homeostasis in plum fruits. *Plant Science* 231: 30-39. 3.36; 31/209 (Plant Sciences); 8
31. Shalom, L.^S, Shlizerman, L.^T, Zur, N.^T, Doron-Faingenboim, A.^T, Blumwald, E.^C and **Sadka, A.**^{PI} (2015). Molecular cauterization of SQUAMOSA PROMOTER BINDING PROTEIN-like (SPL) gene family from Citrus and the effect of fruit load on their expression. *Front. Plant Sci.* <https://doi.org/10.3389/fpls.2015.00389>. 4.49; 15/209 (Plant Sciences); 18
32. Kim, H-Y.^S, Saha, P.^{PD}, Faruh, M.^S, Li, B.^{PD}, **Sadka, A.**^C, Blumwald, E.^{PI} (2015). RNA-seq analysis of spatiotemporal gene expression patterns during plum fruit development reveals candidate genes for transcript normalization using quantitative Real-Time PCR. *Plant Mol. Biol. Rep.* 33, 1634-1649. 3.03; 35/209 (Plant Sciences); 8
33. Zur, N.^T, Shlizerman, L.^T, Ben-Ari, G.^C and **Sadka, A.**^{PI} (2016). Use of magnetic resonance imaging (MRI) to study and predict fruit splitting in citrus. *Hort. J. (formally: J. Japan. Soc. Hort. Sci).* 86: 151-158. 0.974; 12/36 (Horticulture); 11
34. Faruh, M.^S, Li, B.^{PD}, Rivero, R.M.^C, Shlizerman, L.^T, **Sadka, A.**^{PI} and Blumwald, E.^{PI} (2017). Sugar metabolism reprogramming in a non-climacteric bud mutant of a climacteric plum fruit during on-the-

tree development. *J. Exp. Bot.* 16, 5813-5828. 5.52; 12/204; (Plant Sciences); 2 (during my sabbatical leave, I co-supervised MF in organizing the data, its interpretation and writing the paper)

35. *Paudel, I.^S, Cohen, S.^{PI}, Shlizerman, L.^T, Jaiswal, A.K.^S, Shaviv, A.^C and **Sadka, A.**^{PI} (2017). Reductions in root hydraulic conductivity in response to clay soil and treated waste water are related to PIPs down-regulation in *Citrus*. *Sci. Rep.* 7, 15429 DOI:10.1038/s41598-017-15762-2. 4.25; 10/64; (Multidisciplinary); 2
36. Farcu, M.^S, Rivero, R.M.^C, **Sadka, A.**^{PI} and Blumwald, E.^{PI} (2018). Ethylene regulation of sugar metabolism in climacteric and non-climacteric plums. *Postharv. Biol. Technol.* 139, 20-30; 3.24; 9/83; (Agronomy); 6 (during my sabbatical leave, I co-supervised MF in organizing the data, its interpretation and writing the paper); 6
37. Zhoua, K.^S, Jerszurkia, D.^C, **Sadka, A.**^C, Shlizerman, L.^T, Rachmilevitch, S.^C and Ephrath, J.^{PI} (2018). Effects of photosensitive netting on root growth and development of young grafted orange trees under semi-arid climate. *Sci. Horticult.* 238, 272–280. 1.96; 5/36 (Horticulture); 3
38. Farcu, M.^S, Toubiana, D.^{PD}, Sade, N.^{PD}, Rivero, R.M.^C, Doron-Faigenboim, Adi.^T, Nambara, E.^C, **Sadka, A.**^{PI}, Blumwald, E.^{PI} (2019). Hormone balance in a climacteric plum fruit and its non-climacteric bud mutant during ripening. *Plant Science*, 280, 51-65. Category: Plant Sciences; 3.78; 28/228 (Plant Sciences); 1 (during my sabbatical leave, I co-supervised MF in organizing the data, its interpretation and writing the paper)
39. Kumar, L.^S, Reut, P.^T, Lyudmila, S.^T, Sagit, M.^T, Doron-Faigenboim, A.^T, **Sadka, A.**^C; Aharoni A.^C and Flaishman, M.^{PI} (2019). Tissue-specific organic acid metabolism in reproductive and non-reproductive parts of the fig fruit is partially induced by pollination. *Physiol Plantarum*, <https://doi.org/10.1111/ppl.12941>. 3.0; 48/228 (Plant Sciences); 0
40. ***Sadka, A.**^{PI}, Qin, Q.^C, Feng, J.^C, Farcu, M.^S, Shlizerman, L.^T, Zhang, Y.^S, Toubiana, D.^{PD} and Blumwald, E.^{PI} (2019). Ethylene Response of Plum ACC Synthase 1 (*ACS1*) Promoter is Mediated through the Binding Site of Abscisic Acid Insensitive 5 (*ABI5*). *Plants*, doi: 10.3390/plants8050117. 2.63; 59/228 (Plant Sciences); 0
41. Toubiana, D.^{PD}, Puzis, R.^T **Sadka, A.**^C and Blumwald, E.^{PI} (2019). A Genetic Algorithm to optimize weighted gene co-expression network analysis. *J Comput Biol*, DOI: 10.1089/cmb.2019.0221. 0.789; 76/123 (Statistics and Probability); 0

Other Articles (Hebrew and Symposia Proceedings)

1. Kapri, R.^S, Dahan, E.^T, Zehavi, U.^C, Goren, R.^C, and **Sadka, A.**^{PI} (1998). Cloning and characterization of PPI-phosphofructokinase from citrus fruit. *Acta Hort.* 535:113-115.
2. **Sadka, A.**^{PI}, Dahan, E.^T, Varghese, G.^T and Marsh, K.B.^C (2000). Citric acid metabolism: aconitase activity and iron homeostasis. *Proc. Intl. Soc. Citriculture IX Congress* 1:644-646.
3. Kapri, R.^S, Goren, R.^{PI}, Zeavi, U.^C and **Sadka, A.**^{PI} (2000). The regulation of PPI- phosphofructokinase (PFP) during citrus fruit development. *Proc. Intl. Soc. Citriculture IX Congress* 1:683-684.
4. **Sadka, A.**^{PI}, Dahan, E.^T, Hasdai, D.^T, Zur, N.^T, Shpizki, S.^T and Asor, Z.^T (2001). Iron treatments and citric acid level in *Citrus* fruit. *Alon Hanotea* 55: 264-266 (in Hebrew).
5. **Sadka, A.**^{PI} (2001). Acidity and citric acid in *Citrus* fruit (2001). *Alon Hanota* 55, 15-18 (in Hebrew).

6. **Sadka, A.^{PI}** (2001). The citrus research and development activity in the northern Israel. *Et Hahadar* 40: 27-29 (in Hebrew).
7. Degu, A.^S, Prakash, S.^{PD}, Shlizerman, L.^T, Arad, T.^T, Zur, N.^T, Hatew B.^S, Blumwald, E.^C and **Sadka, A.^{PI}** (2008). The regulation of aconitase, a central enzyme of citric acid metabolism in citrus fruit. *Proc. Int. Soc. Citriculture XI Congress* 1: 502-507.
8. Porat, R.^{PI}, Raveh, E.^C, **Sadka, A.^C** and Carmi, N.^C (2011). The origin of citrus and the genetic relations between different cultivars. *Et Hahadar* 78:21-22 (in Hebrew).
9. Waxman, Y.^S, Ratner, K.^T, Shlizerman, L.^T, Giler, Y.^T, Shahak, Y.^C, Cohen, S.^{PI}, Garbachnikov, V.^T, Giladi, B.^T, Feichak, M.^C and **Sadka, A.^{PI}** (2012). Colored nets as a tool to mitigate the microclimate in the orchard. *Alon Hanotea* 66:44-48 (in Hebrew).
10. Wachsmann, Y.^S, Zur, N.^T, Shahak, Y.^C, Cohen, S.^{PI}, Ratner, R.^T, Giler, Y.^T, Shlizerman, L.^T, Giladi, B.^T, Faintzak, M.^C, Kanonich, S.^C and **Sadka, A.^{PI}** (2012). Photosensitive, anti-hail, netting for improved citrus productivity and quality. *Acta Hort* 1015:169-176.
11. **Sadka, A.^{PI}** (2013). Fruit favor and aroma, symposia report. *Et Hahadar*, 95:9-12 (in Hebrew).
12. **Sadka, A.^{PI}**, Shlizerman, L.^T, Morozov, M.^T, Kamara, I.^T, Ben-Tovim, Y.^T and Grinberg, Y.^C (2019). Giberellin treatment during flowering bloom, still the holy grail of citrus productivity. *Et Hahadar*, 136, 6-8 (in Hebrew).
13. Dovjek, I.^S, Nemera, D.B.^S, Wachsmann, Y.^S, Shlizerman, L.^T, Ratner, K.^T, Kamara, I.^T, Morozov, M.^T, Charuvi, D.^C, Shahak, Y.^C, Cohen, S.^{PI}, and **Sadka, A.^{PI}** (2019). Top netting as a practical tool to mitigate the effect of climate change and induce productivity in citrus: summary of experiments using photo-selective nets. *Acta Hort*, In Press

6. Participations in Scientific Conferences, Lectures, and Other activity

6.1. International conferences

6.1.1 Invited lectures at major conferences

Year	Authors	Title	Conference name	City, Country
1998	Sadka A, Dahan E, Erner Y, Arzi B	Acid accumulation in citrus fruit: a biotechnological approach towards its control	The 1 st International Symposium of Citrus Biotechnology	Eilat; Israel
1998	Sadka A, Erner Y, Or E, Dahan E, Cohen L, Arzi B	Organic acid accumulation during fruit development: a molecular approach	The International Symposium on Plant Molecular Biology, Crop Improvement through Gene Transfer: Vision 21st Century	Lucknow,; India
2000	Sadka A, Dahan E, Marsh K, Varghese G	Citric acid metabolism: aconitase activity and iron homeostasis	The 9 th Congress of the International Society of Citriculture	Orlando; Florida
2007	Ravit Goldberg, Lyudmila Shlizerman, Naftali Zur, Etti Or and Avi Sadka	The use of genomic approach to identify factors involved in the induction of flower bud differentiation in <i>Citrus</i>	Plant & Animal Genome XV	San Diego, CA
2008	Asfaw Degu, Sham Prakash, Lyudmila Shlizerman, Naftali Zur, Bayissa Hatew, Eduardo Blumwald, Avi Sadka	The regulation of aconitase, a central enzyme of citric acid metabolism in citrus fruit	The 11 th Congress of Citriculture	Wuhan, China
2011	Shalom L, Samuels S, Zur N, Shlizerman L, Sadka A	Characterization of Key Determinants of Alternate Bearing in Citrus	The International Symposium on Genomics and Functional Genomics of Fruit Crops	Wuhan, China

2012	Yishai Wachsmann, Naftali Zur, Yosepha Shahak, Shabtai Cohen, Kira Ratner, Yuri Giler, Ludmila Schlizerman, Boaz Giladi, Meir Faintzak, Shuki Kanonich, Avi Sadka	Photoselective, anti-hail, netting for improved citrus productivity and quality	The International CIPA Conference	Tel-Aviv, Israel
2014	Sadka, A, Shalom L, Samuels S, Levi Y, Zur N, Shlizerman L, Adi Faigenboim	Regulatory pathways associated with the control of fruit load on back flowering in citrus	The 3 ^{ed} Symposium on Citrus Biotechnology	Shizouka, Japan
2019	I. Dovejek, D.B. Nemera, Y. Wachsmann, L. Shlizerman, K. Ratner, I. Kamara, M. Morozov, D. Charuvi, Y. Shahak, S. Cohen and A. Sadka	Top netting as a practical tool to mitigate the effect of climate change and induce productivity in citrus	XI International Symposium on Protected Cultivation in Mild Winter Climates & I International Symposium on Nettings and Screens in Horticulture	Tenerife; Spain

6.1.2 Invited lectures at workshops

Year	Authors	Title	Conference name	City, Country
2007	Sadka A	Trends in citrus industry and research in Israel	International Symposium on Trends in Citrus Industry and Research Symposium	Jeju; S. Korea
2007	Sadka A	Citrus genomics in Israel	The annual Meeting of the International Citrus Genomics Steering Committee	Walnut Creek, CA
2007	Sadka A	Trends in citrus industry and research in Israel	The EuroMedCitrusNet 1st Project Workshop Provisional Program	Adana; Turkey
2018	Diriba Namera, Ilya Dvojek, Yishai Wachsmann, Kira Ratner, Lyudmila Shlizerman, Naftali Zur, Itzhak Kamara, Dana Chruvi, Yosepha Shahak, Shabtai Cohen, Avi Sadka	Top netting as a practical tool to mitigate the effect of climate change in fruit trees	UK-Israel Conference on Climate Change and Food Systems	Rishon Le'Zion; Israel

6.1.3 Lectures (selected oral presentations)

Year	Authors	Title	Conference name	City, Country
1996	Sadka A, Emer Y, Arzi B, Dahan E	Molecular biology of citric acid accumulation in citrus fruit	The VII Congress of the International Society of Citriculture	Sun City; South Africa
2000	Sadka A, Dahan E, Marsh K, Varghese G	Iron homeostasis and citric acid metabolism in citrus fruit	The 10 th International Symposium on Iron Nutrition and Interactions in Plants	Huston, TX
2007	Gabriel Bardosh, Lyudmila Shlizerman, Samuel Kaldern, Alina Sorkin and Avi Sadka	Ovary- and pulp-specific promoter from citrus is active in tomato, tobacco and <i>Arabidopsis</i> reproductive organs and fruits	The 27 th International Horticultural Congress	Seoul; S. Korea
2008	Yishai Wachsmann, Naftali Zur, Yosepha Shahak, Shabtai Cohen, Kira Ratner, Yuri Giler, Lyudmila Shlizerman, Boaz Giladi, Meir Faintzak, Shuki Kanonich, Avi Sadka	Photoselective, anti-hail, netting for improved citrus productivity and quality	The 11 th Congress of Citriculture	Wuhan, China
2009	Alina Sorkina Gabriel Bardosh, Samuel Kalderon, Ifat Ben-Haim, Luidmila Schlizerman, Naftali Zur, Eduardo Blumwald Eliezer E. Goldschmidt and Avi Sadka	Isolation of a novel gene, which might play a role in citrus fruit acidity and the analysis of its promoter in tomato	The 2 nd International Symposium of Citrus Biotechnology	Catania; Italy
2014	Sadka A, Shalom L, Samuels S, Levi Y, Zur	Regulatory pathways associated with the control of alternate bearing in citrus	The 29 th International Horticultural Congress	Brisbane; Australia

	N, Shlizerman L, Adi Faigenboim			
2014	Sadka A, Zur N, Shlizerman L	Use of Magnetic Resonance Imaging (MRI) to predict and study citrus fruit splitting	The 29 th International Horticultural Congress	Brisbane; Australia
2015	Diriba Bane Nemera, Naftali Zur, Victor Lukyanov, Kira Ratner, Yosepha Shahak, Shabtai Cohen	Top photosensitive netting results in improved microclimate, productivity, physiological performance and water-use efficiency in citrus	GreenSys 2015: International symposium on New Technologies and Management of Greenhouses	Evora; Portugal
2016	Sadka A, Shlizerman L, Zur N, Florentin A	Towards the understanding of juice sac development	The 13 th Congress of the International Society of Citriculture	Foz Du Iguassu; Brazil

6.1.4 Posters

Year	Authors	Title	Conference name	City, Country
1997	Sadka A., Or E, Erner Y, Dahan E, Arzi B	Organic acid accumulation in citrus fruit: a molecular approach	The 5 th International Congress for Plant Molecular Biology	Singapore
1998	R. Kapri, E. Dahan, U. Zehavi, R. Goren, A. Sadka (R. Kapri)	Cloning and characterization of PPi-phosphofructokinase from citrus fruit	The 1 st International Symposium of Citrus Biotechnology	Eilat; Israel
2001	Kapri R, Goren R, Zehavi U, Sadka (Kapri R)	The regulation of PPi-phosphofructokinase (PFP) during citrus fruit development	Plant Biology 2001	Providence, RI, USA
2007	Lyudmila Shlizerman, Natali Zur, Shabtai Shabchiski, Nirit Bernstein and Avi Sadka	Triazoles reduce the effects of salt stress, including chloride uptake, in <i>Citrus</i>	The 27th International Horticultural Congress	Seoul; S. Korea

6.2 Local conferences

6.2.1 Invited lectures

Year	Authors	Title	Conference name	City, Country
1996	Sadka A, Tang Z, Mullet JE	Metabolic regulation of plant genes by sugar and phosphate	The Annual Meeting of the Israeli Society of Plant Molecular Biology	Beer Sheba, Israel
2004	Avi Sadka	Advanced approaches to study and solve the problem of citrus fruit acidity	The Shmuel Ashkenazi (Sam) Annual Meeting of Citrus Growers	Rishon Le'Zion, Israel
2008	Avi Sadka	Flowering control: what's new?	Annual Scientific Meeting of Hishtil, LTD	Tel Aviv, Israel
2008	Sadka A, Shahak Y, Cohen S, Ratner K, Zur N, Shlizermann L, Fainzak M, Giladi B	Nets in citriculture: open pipe, lower flow and induced production?	Annual Meeting of Mehadrin-Tnuport, LTD	Tel Aviv, Israel
2009	Sadka A, Shahak Y, Cohen S, Ratner K, Zur N, Shlizermann L, Fainzak M, Giladi B	Top netting in citriculture: less water more yield	The Shmuel Ashkenazi (Sam) Annual Meeting of Citrus Growers	Rishon Le'Zion, Israel
2010	Sadka A, Degu A, Hatew B, Shlizerman L, Zur N, Fernie A, Nunes-Nesi A	The control of fruit acidity: the challenge from the single cell to the whole tree	The Annual Monselise and Bar-Akiva Memorial Symposium in Horticulture	Rishon Le'Zion, Israel
2013	Sadka A, Erner Y, ZUR N, Shlizerman L, horesh M	Odem fruit acidity: approaches and results	The Shmuel Ashkenazi (Sam) Annual Meeting of Citrus Growers	Rishon Le'Zion, Israel
2015	Liron Shalom, Sivan Samuels, Yasmin Levi, Vijay Bahadur, Naftali Zur, Lyudmila Shlizerman, Adi Faigenboim	Regulatory pathways associated with the control of fruit load on flowering in <i>Citrus</i>	The Annual Monselise and Bar-Akiva Memorial Symposium in Horticulture: Alternate bearing and flowering control in fruit trees	Rishon Le'Zion, Israel

6.2.2 Lectures (selected oral presentations)

Year	Authors	Title	Conference name	City, Country
1999	Sadka A, Dahan E, Erener Y, Arzi B	Molecular physiology of citric acid accumulation in citrus fruit	The Annual Meeting of the Israeli Society of Plant Molecular Biology	Oral

2015	Liorn Shalom, Naftali Zur, Lyudmila Shlizerman, Avi Sadka (Student presentation)	The expression of <i>SPL</i> transcription factor and microRNAs precursors are affected by fruit load in <i>Citrus</i>	The Annual Monselise and Bar-Akiva Memorial Symposium in Horticulture: Alternate bearing and flowering control in fruit trees	Rehovot; Israel
------	--	--	---	-----------------

6.2.3 Posters

Year	Authors	Title	Conference name	City, Country
2013	L Shalom, S Samuels, N Zur, L Shlizerman, A Sadka (Student presentation)	Alternate bearing in Citrus: From physiology to functional genomics and back	Israel Society of Plant Sciences	Rehovot, Israel

6.3 Other lectures and seminars

Outside my institute/ the Ministry of Agriculture and Rural Development

Year	Authors	Title	Institute	City, Country
1993	A Sadka, A Zamir,	A novel protein associated with salt tolerance of the green alga <i>Dunaliella salina</i>	Texas A&M U	College Station, TX, USA
1994	A Sadka, J Mullett	Gene regulation by sugars and phosphate	The Weizmann Ins.	
1994	A Sadka, J Mullett	Gene regulation by sugars and phosphate	Ben-Gurion U	Beer Sheba, Israel
1994	A Sadka, J Mullett	Gene regulation by sugars and phosphate	Hebrew U.	Jerusalem, Israel
1996	Sadka A, Tang Z, Mullett JE	Metabolic regulation of plant genes by sugar and phosphate	Tel Aviv University	Tel Aviv, Israel
2002	Avi Sadka, Asfaw Degu, Sham Prakash, Lyudmila Shlizerman, Naftali Zur, Bayissa Hatew, Eduardo Blumwald	Regulation of acid accumulation in citrus fruit: aconitase and iron homeostasis	University of CA	Davis, CA, USA
2003	Avi Sadka, Asfaw Degu, Sham Prakash, Lyudmila Shlizerman, Naftali Zur, Bayissa Hatew, Eduardo Blumwald	Regulation of acid accumulation in citrus fruit: aconitase and iron homeostasis	University of CA	Riverside, CA, USA
2008	Avi Sadka, Yishai Wachsmann, Kira Ratner, Lyudmila Shlizerman, Naftali Zur, Yosepha Shahak, Shabtai Cohen	Photo-selective, anti-hail netting for improved citrus productivity and quality	Huazhong Ag. Univ.	Wuhan, China
2009	Avi Sadka, Asfaw Degu, Sham Prakash, Lyudmila Shlizerman, Naftali Zur, Bayissa Hatew, Eduardo Blumwald	Regulation of acid accumulation in citrus fruit	Max Plank Inst.	Golm, Germany
2013	A Sadka, L Shalom, S Samuels, Nftali Zur, L Shlizerman	Fruit load and citrus flowering: new insights into old ideas	Instituto Agronomico de Campinas, Centro de Citricultura Sylvio Moreira	Cordeiropolis, Brazil
2013	A Sadka, L Shalom, S Samuels, Nftali Zur, L Shlizerman	Fruit load and citrus flowering: new insights into old ideas	HUJI	Rehovot, Israel
2015	A Sadka	Trends in citrus industry and research in Israel	Fruit Tree Research Institute, Guangdong Academy of Agricultural Sciences	Guangzhou, China
2015	A Sadka, L Shalom, S Samuels, Nftali Zur, L Shlizerman	Alternate bearing in citrus: new insights into old ideas	Fruit Tree Research Institute, Guangdong Academy of Agricultural Sciences	Guangzhou, China
2017	Avi Sadka, Diriba Namera, Ilya Dvojek, Yishai Wachsmann, Kira Ratner, Lyudmila Shlizerman, Naftali Zur, Itzhak	Top photo-selective netting results in improved microclimate, productivity, physiological performance and water-use efficiency in citrus	California Citrus Growers Association	Lindcove, CA, USA

	Kamara, Dana Chruvi, Yosepha Shahak, Shabtai Cohen			
2017	Avi Sadka, Diriba Namera, Ilya Dvojek, Yishai Wachsmann, Kira Ratner, Lyudmila Shlizerman, Naftali Zur, Itzhak Kamara, Dana Chruvi, Yosepha Shahak, Shabtai Cohen	Citrus and global warming: photo-selective netting as a possible solution	University of CA	Davis, CA, USA
2019	A Sadka, L Shalom, S. Samuels, Y Levi, N Zur, L Shlizerman	Alternate bearing and auxin polar transport in citrus: old ideas, new data	Agriculture and Agri- Food Canada	Summerland, Canada

Seminars in my institute or the Ministry of Agriculture and Rural Development

So far, I have given a few seminars in various institutes of the ARO (Institute of Horticulture, Institute of Plant Sciences, Neve Ya'ar Research Center, Institute of Post-Harvest and Food Sciences). In addition, I give at least once a year seminars and lectures to the Citriculture/Fruit Trees Extension Service Officers.

7. Patents

1. Ian J. Puddephat^C, Simon C. McWilliam^C, Shahak, Yosepha^{PI}, **Avi Sadka**^{PI}, Zari E. Gal^{PI} (2019). Light spectrum-modifying netting for use in citrus fruit production. WO 2019/043121 A1. National Phase. The patent is commercialized, PepsiCo Inc., Aug. 2018.

SCIENTIFIC BIOGRAPHY

"Physiology: the lively learning of the logic of life" (the Physiological Society of Japan)

I am a plant physiologist, and throughout my career, I aimed at characterizing and understanding questions related to various aspects of plant growth and development, and its responses to external stimuli. Being a scientist in an applied research institute, practical questions related to citrus productivity and quality usually govern my research aims. However, basic questions are also part of my studies, and most of the projects combine practical and basic research, with some being very practical (field experiments with no basic scope), and some very basic.

Early career scientific contribution

My PhD study was devoted to understand mechanisms of halotolerance in the unicellular green alga, *Dunalliella*. I found and characterized a novel plasma membrane protein, identified as transferrin receptor, playing a role in iron uptake (Refs. 2,3,17). The work shed light on the fact that iron availability under salty conditions is reduced, demonstrating mechanisms to overcome it. My postdoctoral work, performed in "real" plants, helped identify mechanisms upregulated under sugar access conditions. I found that vegetative storage proteins (VSPs), induced under such conditions, are transcriptionally co-regulated by sugar and phosphate, and, in fact, such proteins were "chosen" as VSPs, because of the way they are regulated (Refs. 4-6, 16).

Scientific contribution from current position

Fruit quality: Quality and maturity of commercial fruits are usually determined by the sugar-to-acid ratio. A considerable portion of the research in my lab has been dedicated to studying the acidity problem. Although we study mostly citrus, we have also been involved in research on grapes, conducted in E. Or's lab (ARO) and on fig, conducted in M. Fleishman lab (ARO). As a result of these studies, a better understanding of acid metabolism and accumulation has been achieved as follows: (1) the formulation of a plausible scenario for citrate accumulation and decline in the juice sac cell, which is now well accepted among scientists in the field (Refs. 8-10, 15). A collaboration with E. Blumwald led to the elucidation of transport mechanisms playing a role in this process (major parts of the methodology to study tonoplastic transport were developed by me during a sabbatical stay in Blumwald's lab during 2012-2003) (Refs. 11,18). (2) elucidating the control of aconitase, a key enzyme in citrate metabolism. This iron protein catalyzes a key step in citrate metabolism and accumulation. We showed the effect of iron and metabolic inhibitors on enzyme expression and activity, leading to practical means to control fruit acidity (Refs. 20,23) (3) characterization of the proteome and metabolome of the juice sac cell, as part of our collaboration with E. Blumwald. Most of the work was carried out by U. Katz, a postdoctoral fellow in Blumwald's lab who I co-mentored. Overall, these studies provide, to the best of my knowledge, the most comprehensive studies of citrus fruit proteome and metabolome (Refs. 19,22,24). (5) malate metabolism in grape berry involves changes in the activities and gene expression of pyruvate decarboxylase, malate dehydrogenase, PEP carboxylase and alcohol dehydrogenase throughout grape berry development (Refs. 12-14).

Climacteric vs. non-climacteric fruit ripening: this research is part of collaborative effort with E. Blumwald, which was further enhanced during my recent sabbatical leave in his lab (2016-2017). It is based on a plum bud mutant which shows non-climacteric ripening, as opposed to climacteric ripening of its parental cultivar. In addition, this mutant shows a shift from sucrose to sorbitol metabolism (Ref 31, 32, 34, 36, 38, 41). A recent work, showed the transcriptional regulation of a key enzyme of ethylene biosynthesis by sugars and hormones (Ref. 40). Our joint effort is aimed at understanding the control of the shift between climacterism and non-climacterism, and to find out how this shift is connected to sugar metabolism.

Alternate bearing: Alternate bearing (AB) is the process by which a heavy crop load in one year (ON year) is followed by a low crop load the following (OFF) year, resulting in economic damage in many fruit-tree cultivars. It is assumed that the fruit or an organ which senses the fruit's presence produces a signal (AB signal) which inhibits back flowering. In our studies, we concentrate on the bud, which receives the AB signal and has to “decide” its fate—flowering or vegetative—based on fruit load status. Our studies shed light on the expression of flowering-control genes during the year, and specifically, during the flowering-induction period, and identified changes in metabolic and regulatory processes which might play a role in controlling AB (Ref 26,27). More specifically, the identification of changes in two important regulatory pathways which might well be involved in AB control in the bud was achieved: (1) abscisic acid metabolism and content, and (2) Ca⁺²-dependent polar transport and content of auxin (Ref. 29). In addition, changes in the expression of SPL associated with flowering control, were also associated with fruit load (Ref 31).

Current and future research in the lab is aimed at elucidating auxin polar transport and its effect on the AB signal in citrus and in olives (in collaboration with Harley Smith, SCIRO, Australia and Alon Samach, HUI).

Isolation of citrus fruit-specific promoter: A sideline to the research on acidity was the isolation of *C1111*, a gene of unknown function expressed in the pulp of acid lemon but not acidless lime. The gene seemed to be pulp (juice sac)- specific. Consequent research took two directions: (1) the isolation of *C1111* as a pulp-specific promoter (Ref. 25), and (2) understanding the function of the gene's product. Despite intensive ongoing efforts to understand the function of *C1111*'s product, it remains enigmatic. Current research is aimed at silencing the homologous tomato gene using fruit-specific promoter and gene editing technology.

The effect of treated waste water (TWW) on citrus tree physiology: Long term irrigation with TWW results in reduced productivity of fruit trees. I was part of an interdisciplinary effort to understand the effect of TWW on citrus physiology, water relations and productivity (led by Dr. A. Bar-Tal). My part was to understand the combined effect of TWW and heavy soil on the hydraulic conductivity and PIPs expression in the root. We identified which PIP genes members are associated with root conductivity, and are affected by TWW and heavy soil (Ref. 35).

Photoselective nets: microclimate modification, induced productivity and improved water-use efficiency: Nets are commonly used to protect agricultural crops from excessive solar radiation, environmental hazards and pests. Partial modification of the spectra by photo-selective netting might add additional benefits, which are crop-and aim-dependent. The technology of photo-selective netting was tested in collaboration with Drs. Y. Shahak and S. Cohen (ARO) in Ori mandarin for several years, with me acting

as PI. Trees under the nets displayed improved physiological performance, including increased stomatal conductance, but reduced water consumption. Yield was significantly higher under the nets, and the external quality of the fruit was significantly improved (Ref 9, others, 10 others). Considering the benefits that the technology offers in Citriculture, I was requested by PepsiCo to design a project in juice oranges, Valencia. One of the nets, used in the experiment, was designed by us based on our previous results. Following excellent results of the first three years, PepsiCo has decided to construct wide experiment in Florida. I was requested to act as a consulted for the construction of this experiment. The results of both experiments, in Israel and in Florida show an increase of 30-50% in juice content, along with a major improvement in tree physiology and water-use efficiency (Refs. 37,13 others). Moreover, the nets reduce canopy temperature not only in the summer (which is expected), but also in the winter. As global warming results in higher winter temperatures, reducing them during this season is beneficial for productivity and color break of the fruit, both dependent on sufficient number of cold hours. The newly designed net was patented by PepsiCo, and recently, a decision was made to commercialize it, which opens the way to publish the work.

Fruit Splitting in citrus: Fruit splitting is a physiological disorder causing heavy fruit loss during some years (splitting years). Based on MRI technology, we developed a practical tool aimed at predicting the percentage of split fruit as early as two months prior to the appearance of the phenomenon (Ref. 33). Early prediction of splitting incidence, especially during splitting years, is important for the grower. We were recently granted a fund to understand the effect of environmental cues in splitting incidence, and to develop practical tools to mitigate it, based on modified irrigation regime. This wide project, run in collaboration with GIS/modeling scientist (T. Paz-Kagan, ARO) and with an expert in satellite-based metrological data collection (I. Lanzky, Bar-Ilan U), also includes histological and genomics parts (in collaboration with I. Ginzberg, ARO).

The control of juice sac initiation in citrus fruit: The juice sac is a unique structure found only in *Citrus* and in its related genera. Juice sac develops from the endocarp, the two most inner cell layer of the white peel (albedo). Current research in the lab (not funded yet) is aimed at understanding the controlling points of juice sac initiation. For that, we compare two types of citrons, Calabria citron, which develop normal juice sacs, and Yemenite citron which lacks them. Using Laser Capture Microdissection, we have isolated endocarp cells from both types of fruit and performed comparative genomics analysis. We also perform comparative metabolomics analyses. An interesting finding is that while incubated in contact with Calabria ovary/fruitlet sections, Yemenite tissues are able to develop juice sacs, suggesting that yet-to-be identified compound can move from the Calabera section to the Yamentie ones and induce juice sacs development.

Future plans

The successful completion of current projects in my lab, including alternate bearing, fruit splitting, the control of juice sacs initiation and gene editing of the tomato homolog of *CIII*, are obviously prioritized. However, in parallel, I would like to study in more depth the control of fruit ripening by characterizing and understanding the differences between climacteric and non-climacteric fruit ripening (and all the range of ripening behaviors in between these two extremes).