

## CURRICULUM VITAE

### MELIH ONAY



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### **EDUCATION**

**2008- 2015** Ph.D. Degree in Department of Biochemistry  
Middle East Technical University, Ankara, Turkey, Ph.D. Honor's student

**Thesis advisor:** Prof. Dr. Meral Yücel  
Prof. Dr. Hüseyin Avni Öktem

**Dissertation:** Biofuel Production from Microalgae

**2005-2008** MSc Degree in Department of Biochemistry  
Middle East Technical University, Ankara, Turkey, M.S. Honor's student

**Dissertation:** Investigation for Natural Extract Inhibitors of Bovine Lens Aldose Reductase Responsible for the formation of Diabetes Dependent Cataract

**1999-2003** BSc Degree in Department of Biology  
Ankara University, Ankara, Turkey ,B.S. Honor's student

### **PROFESSIONAL EXPERIENCE**

**2016-** Asst. Prof. Dr. Van Yuzuncu Yıl University, Department of Environmental Engineering

**2015- 2016** Res.Asst. Dr. Van Yuzuncu Yıl University, Department of Chemistry, Van, Turkey

**2005- 2015** Graduate Research Assistant Biochemistry Program, Middle East Technical University, Ankara, Turkey

## **TEACHING EXPERIENCE**

### **Undergraduate Courses**

**2016-2017**

**Fall Term**

MMCEV229 Professional Foreign Language

MMKIM105 General Chemistry I

MMGEN207 Engineering Mathematics

**Spring Term**

MMCEV212 Environmental Microbiology

MMKIM106 General Chemistry II

**2017-2018**

**Fall Term**

MFCEV2029 Professional Foreign Language

MFKIM1005 General Chemistry I

MFGEN2001 Engineering Mathematics

MFCEV3007 Noise Pollution and Control

**2017-2018**

**Spring Term**

MFCEV2012 Environmental Microbiology

MFKIM1006 General Chemistry II

MFCEV2028 Research and Presentation Techniques

MFCEV3024 Environmental Toxicology

**2018-2019**

**Fall Term**

MFCEV1001 Introduction to Environmental Engineering

MFCEV2029 Professional Foreign Language

MFCEV3007 Noise Pollution and Control

MFCEV4031 Indoor Air Pollution

### **Graduate Courses**

**2017-2018**

**Fall Term**

FBMCM7021 Biofuel Production Technologies from Microalgae

FBMCM7023 Advanced Environmental Microbiology

**Spring Term**

FBMCM7020 Advanced Environmental Modeling and Simulation

FBMCM7022 Applications of Biomolecular Engineering in Environment

**2018-2019**

**Fall Term**

FBMCM7021 Biofuel Production Technologies from Microalgae

FBMCM7023 Advanced Environmental Microbiology

## **Spring Term**

FBMCM7020 Advanced Environmental Modeling and Simulation  
FBMCM7022 Applications of Biomolecular Engineering in Environment

**2014-2015** Research Assistant at Department of Chemical Engineering, France National Biodiesel Center, University de Nantes.

**2013-** Research Assistant at Department of PMD, Biohydrogen production Center, University of California, Berkeley, USA.

**2010-2013** Coordinator Assistant in Biochemistry Seminar.

**Spring, 2005-2012** Graduate Teaching Assistant Biochemistry Laboratory (Middle East Technical University, Department of Biochemistry).

**Fall, 2012** Graduate Teaching Assistant Instrumetal Methods in Biochemistry Laboratory (Middle East Technical University, Department of Biochemistry).

**Fall, 2009-2011** Graduate Teaching Assistant Microbiology Laboratory (Middle East Technical University, Department of Biochemistry).

**Fall, 2005-2008** Graduate Teaching Assistant Bioanalytical Chemistry Laboratory (Middle East Technical University, Department of Biochemistry).

## **HONORS AND AWARDS**

**1.** Prof. Dr. Mustafa Parlar 2014-2015 METU, Thesis of the year

**2.** International Grant for PhD Students from TUBITAK (The Scientific and Technological Research Council of Turkey) (2014- 2015 ) (Department of Chemical Engineering, France National Biodiesel Center, University de Nantes)

**3.** International Grant for PhD Students from TUBITAK (The Scientific and Technological Research Council of Turkey) (2013) Department of PMD, Biohydrogen production Center, University of California, Berkeley, USA

**4.** METU (Middle East Technical University) Course Graduate Performance Award for PhD students. ( First prize). (2012).

**5.** METU Publication Award (2014)

**6.** National Scholarship Programme for PhD Students from TÜBİTAK (The Scientific and Technological Research Council of Turkey) (2008-20012).

**7.** National Scholarship Programme for MSc Students from TÜBİTAK (The Scientific and Technological Research Council of Turkey) (2005-2008).

**8.** Travel award for 36 th FEBS Congress in Turin/ Italy (2011) ( Biochemistry for Tomorrow's Medicine).

**9.** Travel award for 2nd International Conference on Algal Biomass, Biofuels and Bioproducts in San Diego, CA, USA (2012).

**10.** Travel award for 37 th FEBS Congress in Sevilla/Spain (2012).

**11.** Full expense award for 38 th FEBS Congress in St. Petersburg/ Russia (2013)

**12.** Travel award for 39 th FEBS Congress in Paris/France (2014).

## **PUBLICATIONS**

### **Publications/Meeting Contributions / Published Abstracts**

- 1. Onay, M.** Investigation of Biobutanol Efficiency of *Chlorella* sp. Cultivated in Municipal Wastewater. **Journal of Geoscience and Environment Protection**, 2018, (6), 10, 40-50
- 2. Onay A., Onay M., Abul O.** Classification of nervous system withdrawn and approved drugs with ToxPrint features via machine learning strategies. **Computer Methods and Programs in Biomedicine**, 2017, 142, 9-19.
- 3. Onay, M., Sonmez, C.; Oktem, H.A.; Yucel, A.M.** Evaluation of various extraction techniques for efficient lipid recovery from thermo-resistant microalgae, *Hindakia*, *Scenedesmus* and *Micractinium species*. (Comparison of Lipid Extraction Methods from Microalgae). **American Journal of Analytical Chemistry**, 2016, (7), 2, 141-150.
- 4. Onay M., Koyuncular Onay A.** Theoretical calculations and structural and electronic properties of isoflavanes: arvensan and isosativan. **Acta Horticulturae**, 2016, 1145, 97-100.
- 5. Koyuncular Onay A., Onay M.** "Computational studies of isoflavanes: isovestitol and sativan", **Acta Horticulturae**, 2016, 1145, 39-42.
- 6. Onay, M., Sonmez, C., Oktem, H. A., Yucel, M.** Thermo-resistant green microalgae for effective biodiesel production: Isolation and characterization of unialgal species from geothermal flora of Central Anatolia. **Bioresource Technology**, 2014, 169, 62-71.
- 7. Onay M., Oktem H.A., Yucel A.M.** Bio-fuel production from olive oil by transesterification reactions, **New Biotechnology**, 2012, 29, 43.
- 8. Onay M., Coruh N., Celep F., Dogan M.,** Total phenolics content of the ethyl acetate extract of *Salvia tomentosa*. **Planta Medica**, 2011, 77, 1314
- 9. Onay M., Sonmez C., Oktem H.A., Yucel M.** Thermo-resistant microalgae for biodiesel production", **FEBS JOURNAL**, 2014, 281, 672-673.
- 10. Onay M., Coruh N.** Characterization of bovine lens aldose reductase enzyme and its kinetics study on cofactor NADPH. **FEBS JOURNAL**, 2012 ,279, 428
- 11. Onay, M., Çoruh, N., Işgör, B. (2010).** Aldose reductase natural inhibitors from ethyl acetate extracts from Southern Turkey. 9th International Society for the Study of Xenobiotics (ISSX), September 4-9, 2010, Istanbul, Turkey.
- 12. Onay, M., Çoruh, N.** Antioxidant activities of ethanolic extracts of the selected medicinal plants from Southern Anatolia in Turkey. Turkish Journal of Biochemistry (22th National Biochemistry Congress, October, 27-30, 2010, Eskişehir, Turkey.
- 13. Onay, M., Çoruh, N., Celep, F., Doğan M.** Antioxidant activity of ethyl acetate extract of *Salvia pomifera*. International Food Congress, "Novel Approaches in Food Industry (NAFI), May, 26-29, 2011, Cesme, Izmir, Turkey.
- 14. Onay, M., Çoruh, N., Işgör, B.** Kinetic studies on Glyceraldehyde concentration of bovine lens aldose reductase. ( the FEBS Journal 278, 1, 2011 P. 03-106) 36 th FEBS Congress ( Biochemistry for Tomorrow's Medicine), June, 25- 30, 2011, Torino, Italy.
- 15. Onay, M., Çoruh, N., Celep, F., Doğan, M.** Total phenolics content of the ethyl acetate extract of *Salvia tomentosa*. 59th International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA 2011), September, 4-9, 2011, Antalya, Turkey.

- 16. Onay, M.,** Çoruh, N., Celep, F., Doğan, M. Free radical scavenging capacity of ethyl acetate extract of *Salvia tomentosa*. (*Current Opinion in Biotechnology* 22,1, 2011, S15-S152) International European Biotechnology Congress 2011 (Euro Biotech 2011), 28 September- 1 October 2011, İstanbul, Turkey.
- 17. Onay, M.,** Çoruh, N., Celep, F., Doğan M.. Total phenol content of ethyl acetate extract of *salvia pomifera*. Turkish Journal of Biochemistry. ( 23th National Biochemistry Congress, 29 November- 2 December 2011, Adana, Turkey.
- 18. Onay, M.,** Çoruh, N., Celep, F., Doğan, M. Antioxidant capacity of ethyl acetate extract of *Salvia aucheri*. International Food, Agriculture and Gastronomy Congress, February, 15-19, 2012, Belek, Antalya, Turkey.
- 19. Onay, M.,** Oktem, H. A., Yucel, M. Comparision of *Chlamydomonas reinhardtii* and *Dunaliella salina* for Bio-fuel Production. 2nd International Conference on Algal Biomass, Biofuels and Bioproducts. 10-13 June 2012 San Diego, California, USA.
- 20. Onay, M.,** Çoruh, N., Characterization of bovine lens aldose reductase enzyme and its kinetics study on cofactor Nadph, FEBS Journal (Special Issue – Volume 279, s1 – September 2012) 04-09 September, 2012, Sevilla, Spain.
- 21. Onay, M.,** Yucel, M., Oktem, H. A. Bio-fuel production from olive oil by transesterification reactions. 15th European Congress on Biotechnology of the European Federation of Biotechnology, 23-26 September 2012, İstanbul, Turkey.
- 22. Onay, M.,** Yucel, M., Oktem, H. A. Biodiesel Production from huzelnut oil by means of transesterification reaction. FEBS Journal (Special Issue – Volume 280, s1 – July 2013) 06-11 July, 2013, St. Petersburg, Russia.
- 23. Onay, M.,** Sonmez, C., Yucel, M., Oktem, H. A. Thermo-resistant microalgae for biodiesel production. FEBS Journal (Special Issue – Volume , s1 – September 2014) 30 August-04 September, 2014, Paris, France.
- 24. Onay, M.,** Sonmez, C., Yucel, M., Oktem, H. A. Isolation and characterization of microalgae from geothermal flora of Anatolia for biodiesel production. International Conference on Microalgae and Biofuels. 30-31 July, 2015, İstanbul, Turkey. (**Invited speaker**).
- 25. Onay, M.,** Sonmez, C., Yucel, M., Oktem, H. A. “ Isıya Dirençli Yeşil Mikroalglerden Etkili Biyodizel Üretimi “ 18. National Biotechnology Congress. 18-19 December, 2015, Konya, Turkey (Oral Presentation).
- 26. Sonmez, C.,** Elçin, E., Akın, D., **Onay, M.,** Yucel, M., Oktem, H. A. ‘Yerel Mikroalg Türlerinin Verimli Biyodizel Üretimi için Farklı Sıcaklık ve Besi Ortamlarında Detaylı Analizleri’. 18. National Biotechnology Congress. 18-19 December, 2015, Konya, Turkey (Oral Presentation).
- 27. Onay, M.** Investigation of Superoxide Dismutase Activity and Caratenoid Content in *Dunaliella Salina* under Different Stress Conditions.The 3<sup>rd</sup> International Conference on Energy and Environment Research (ICEER 2016) 7-9 September, 2016, Barcelona, Spain (Oral Presentation).
- 28. Onay, A., Onay, M.,** Abul, O. Determination of subgraph fragments and categorization of drugs via data mining approaches. 1. Science and Engineering Congress (IMSEC 2016) 26-28 October, 2016 Adana, Turkey (Oral presentation).
- 29. Onay, M.,** Onay, A. Determination of Potential Drug Types for Diseases via Artificial Neural Network. 2. Science and Engineering Congress (IMSEC 2017) 25-27 October, 2017 Adana, Turkey (Oral presentation).
- 30. Onay, M.** Bioethanol production from *Nannochloropsis gaditana* in municipal wastewater. 5th International Conference on Energy and Environment Research (ICEER 2018) 23-27,July, 2018, Prague, Czech Republic (Oral Presentation).

## **RESEARCH INTERESTS AND PREVIOUS EXPERIENCE**

I am interested in biofuel production from microalgae. Specially, my experiences are biodiesel and biohydrogen production and its increases of efficiencies in reactor systems. In my PhD thesis, I described isolation and characterization of three green microalgal species from geothermal flora of Central Anatolia. All three isolates, namely, *Scenedesmus* sp. METUNERGY1402 (*Scenedesmus* sp. ME02), *Hindakia tetrachotoma* METUNERGY1403 (*H. tetrachotoma* ME03) and *Micractinium* sp. METUNERGY1405 (*Micractinium* sp. ME05) are adaptable to growth at a wide temperature range (25–50 °C). *Micractinium* sp. ME05, particularly has superior properties for biodiesel production. I characterized them as morphologically with SEM (Scanning Electron Microscopy) and TEM (Transmission Electron Microscopy) and molecularly with 18S rRNA. Then I quantified protein, carbohydrate and lipid amounts. Next, I checked them for biodiesel potentials and calculated biodiesel productivities. Then, I worked at Department of Chemical Engineering, France National Biodiesel Center, GEPEA Lab University de Nantes. I tried to adapt them in large scale biodiesel photobioreactors. In addition, I explored heat-stable microalgae strains in hot springs. I made isolation and characterization of microalgae in hot springs. Then, I examined their lipid contents by means of solvent extraction and Nile red method with fluorescence spectrophotometer and FTIR, biodiesel productivities and tendencies on genetic modifications. In addition, I worked at METU-Hydrogen Production Lab with Prof. Dr. Meral Yücel for biofuel production.

My master's project at Middle East Technical University (METU) included Natural Extract Inhibitors of Bovine Lens Aldose Reductase Responsible for the formation of Diabetes Dependent Cataract. Thus, I master subjects related with complete purification of enzymes and proteins such as thin layer, gel permeation, ion exchange and affinity column chromatography and my experience includes enzyme activity and enzyme kinetics. Moreover, I studied techniques such as antioxidant activity, total phenol content and isolation of active compounds in my master project.