

## PERSONAL INFORMATION

First Name(s) / Surname(s) : Nazan Koca

## EDUCATION

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<b>Università degli studi Roma Tre, Rome/Italy</b> Mechanical and Industrial Engineering(PhD)	<b>2020-2023</b>
<b>Izmir Institute of Technology, İzmir/Turkey</b> Food Engineering(Master's), TUBITAK 3001 scholar, 3.71/4.00	<b>2015-2019</b>
<b>Inonu University, Malatya/Turkey</b> Food Engineering, 3.52/4.00	<b>2010-2014</b>
<b>Hamburg University of Applied Sciences, Hamburg/Germany</b> Nutrition&Health(Ökotrophologie), Erasmus	<b>2012-2013</b>
<b>Malatya Fatih High School, Malatya/Turkey</b> Science & Mathematics, 89.74/100	<b>2006-2010</b>

## JOB EXPERIENCE

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- **Internship in Dairy Industry**  
I did my internship in KAÇMAZLAR Food Industry Trade Limited Company for 2 months. **2012-2013**
  - **Researcher at Iztech**  
"Development of novel thin edible coatings for fresh-cut fruits and vegetables by layer-by-layer deposition technique" **February 2016-December 2016**
  - **Research activities in BOWARE S.R.L**  
"Formability studies of compostable and bio-derived plastic materials; development of integrated material/process/product design methods for bioplastic products" **February 2021-June 2021**

## PROJECTS

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- **TUBITAK(The scientific and technological research council of Turkey)(1140696)**, Title: "Development of novel thin edible coatings for fresh-cut fruits and vegetables by layer-by-layer deposition technique"  
The focus was on investigating the formation of multilayers using chitosan and sodium caseinate. The project aimed to understand the impact of various parameters on multilayer growth and the resulting coating structure.
  - **Master's Thesis**, Title: "Structure and gas transmission properties of surface-modified food packaging materials through layer-by-layer assembly"  
This project focused on surface modification of biaxially oriented polypropylene (BOPP) for food packaging applications through layer-by-layer (LbL) assembly by utilizing lysozyme, iota-carrageenan and gum Arabic. The resulting edible LbL coatings demonstrated promising gas barrier properties, offering potential for reducing plastic film usage and preserving fresh/fresh-cut produce in modified atmosphere packaging.
  - **Research Project**, Title: "Improving ductility of PLA (Poly-lactic acid) by blending with P3HB4HB (Poly(3-hydroxybutyrate-co-4-hydroxybutyrate)) for packaging applications"  
This project aimed to improve the ductility of PLA (Poly-lactic acid) for packaging applications by blending it with P3HB4HB (Poly(3-hydroxybutyrate-co-4-hydroxybutyrate)). The study focused on evaluating the mechanical, thermal, and physical properties of PLA/P(3HB)(4HB) blends with increasing P(3HB)(4HB) content.
  - **PhD Thesis**, Title: "The development of bio-derived polymeric blends based on PLA/PBS with a high level of secondary raw material for food packaging application"  
Currently conducting research on the development of bio-derived polymeric blends using PLA/PBS with an emphasis on incorporating a high level of secondary raw material for sustainable and eco-friendly food packaging applications.

## PUBLICATIONS

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- **Koca, N., Aversa, C., Barletta, M.,(2023)** “Blown film extrusion of Poly(lactic)acid/Poly(3-hydroxybutyrate-4-hydroxybutyrate) blends for improved toughness and processability” *Polymer Engineering and Science.*, 63(10), 3300-3312.
- **Koca, N., Aversa, C., Barletta, M.,(2023)** “Recycling of poly(lactic acid)/poly(butylene succinate) PLA/PBS blends with high amounts of secondary raw material.” *Journal of Applied Polymer Science* 140.45
- **Aversa, C., Barletta, M., & Koca, N. (2023).** “Processing PLA/P(3HB)(4HB) blends for the manufacture of highly transparent, gas barrier and fully bio-based films for compostable packaging applications.” *Journal of Applied Polymer Science.* <https://doi.org/10.1002/app.53669>
- **Gisario, A., Aversa, C., Barletta, M., Cappiello, G., Koca, N.** “Ternary blends of thermoplastic starch (TPS) with poly(lactic acid) (PLA) and poly(butylene succinate- co-adipate) (PBSA): design, processing and characterization of home compostable materials”- **(Preprint)**
- **Koca, N. and Bayramoğlu B, (2022).** "Layer-by-layer assembly of lysozyme with iota-carrageenan and gum Arabic for surface modification of food packaging materials with improved barrier properties." *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 639: 128391.

## CONFERENCE PRESENTATIONS:

### ❖ ORAL PRESENTATIONS:

- Koca, N. & Bayramoğlu, B. (2018). Development and characterization of surface-modified food packaging materials from lysozyme and gum arabic by layer-by-layer assembly. Section: Packaging and labeling. Book of Abstracts of the 5th International ISEKI-Food Conference, Stuttgart, Germany,2018.
- Plastic recycling show Europe(PRSE 2023), Amsterdam, Netherlands 2023

## ACCOMPLISHMENTS

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- ❖ 2012-2013 Erasmus Fellowship given by European Union, HAW Hamburg-Germany
- ❖ 2014 2<sup>nd</sup> degree of graduation of Food Engineering department, Faculty of Engineering, Inonu University, Malatya-Turkey

## OTHER SKILLS

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- **Polymer material characterization techniques** (DSC, FTIR, UV-Vis spectroscopy, Capillary Rheometer, Tensile testing, MFR, HDT and Vicat, AFM, SEM)
- **Application Software:** Microsoft Office Project Server, Microsoft Office programs, Minitab, DoE, Endnote & Mendeley
- **Graphics and Multimedia:** OriginPro, Nanoscope Analysis