



## Curriculum Vitae

Institute of Nutrition, Mahidol University (INMU)

999 Phutthamonthon 4 Rd., Salaya, Phutthamonthon

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**Name: Patnarin Benyathiar**

**E-mail address: patnarin.ben@mahidol.ac.th**

**Current position: Assistant Professor**

### Education:

2014	Ph.D. (Packaging)	The School of Packaging, Michigan State University, East Lansing	USA
2010	M.S. (Packaging)	The School of Packaging, Michigan State University, East Lansing	USA
1999	B.S. (Biology)	Faculty of Science, Mahidol University, Bangkok	Thailand

### Research Interest and Expertise:

1. Food processing and packaging technology
2. Packaging sterilization for aseptic foods
3. Packaging innovation and technology
  - Active packaging for food shelf-life extension
  - Smart and intelligent packaging
  - Nanoencapsulation
4. Sustainable packaging
  - Research and development of biodegradable packaging material (plant fiber, starch film, polylactic acid (PLA), cellophane)
5. Packaging recycling (rPET)
6. Food and packaging interaction (migration)

### Research experiences:

- Shelf-life extension for fresh product using modified atmosphere packaging
- Edible coating for extending the shelf-life of sea foods
- Effect of herb essential oil with starch-based film on microorganisms
- Effect of nanoencapsulated essential oil on *Aspergillus flavus*
- Development of cushioning material reinforced from rice straw for fresh produce
- Development of bio-bases film reinforced with cellulose nanofiber
- Development of pulp paper from agricultural residue to be a paper lid for cup



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- Development of Novel Ultra-Accelerated Shelf-Life Test (UASLT) for shelf-life of packaged beverage
- Effect of sterilization methods for packaging materials on the survival of pathogenic bacteria

### Professional experiences:

#### 1. Industry

##### Co-founder & Managing director, ICE LLC, IN, USA

- Aseptic packaging, aseptic filler validation
- Training industrial food processors

##### Packaging Engineer R&D, Mead Johnson, IN, USA

#### 2. Instructor for training/workshop

- Food and Drug Administration (FDA) inspectors, USA
- Better Process Control School (BPCS) workshop, USA
- Aseptic Processing and Packaging workshop, USA
- Aseptic Food Processing Validation workshop, USA

#### 3. Assessor

- Food Contract Material Assessor, Thailand Risk Assessment center (TRAC), Thailand

#### 4. Reviewer

##### Journal peer review

1. Reviewer for Journal Environment, Development and Sustainability
2. Reviewer for Journal Express Polymer Letter
3. Reviewer for Journal Thermochemica Acta
4. Reviewer for Journal Food and Bioprocess Technology
5. Reviewer for Journal Frontier in Environmental Science
6. Reviewer for Journal Progress in Rubber Plastics Recycling Technology
7. Reviewer for Journal of Polymers and the Environment

##### Grant review

- Reviewer for Grant project proposal of Circular Economy, National Science and Technology Development Agency (NSTDA), Thailand



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### Training:

1. Better Process Control School (BPCS), Michigan State University, USA
2. Food Contract Material Assessor, Thailand Risk Assessment center (TRAC), Thailand

### Publications:

#### 1. International level

1. Muniandy A., Benyathiar P\*, Ozadali F., Mishra D.K.\*, 2024. Development of Predictive Model for the Novel Ultra-Accelerated Shelf-Life Test (UASLT) for Shelf-Life of Packaged Beverage. *LWT*.
2. Sawale M., Singh A., Gutierrez D., Bala S., Murguia-Peniche T., Ozadali F., Benyathiar P.\*, Mishra D.\*, 2024. Antimicrobial effect of Lactoferrin and Glycerol Monolaurate on selected bacteria associated with newborn infections. *Food Control*.
3. Sawale M., Singh A., Benyathiar P.\*, Ozadali F., Bhunia A.K., Pol V.G., Mishra D.K.\*, 2024. Inactivation kinetic parameters of hydrogen peroxide application in commercial sterility of aseptic processing systems. *Journal of Food Engineering*, 378, 112105
4. Muniandy A., Benyathiar P., Ozadali F., Mishra D.K.\*, 2023, Multi-accelerant approach for rapid shelf-life determination of beverages in polymeric packaging. *Food Research International*, 173, 1133185
5. Sawale M., Benyathiar P., Coronel P., Rawat A., Simunovic J., Ozadali F., Mishra DK.\*, 2023, Aseptic microwave sterilization and validation of food containing particles. *Food and Bioprocess Processing* 143, 28–35
6. Muniandy, A., Benyathiar, P., Ozadali, F., Mishra, D.K.\*, 2023. Application of inverse problems in diffusivity coefficient estimation of polymeric packaging materials and food shelf-life determination. *Journal of Physics: Conference Series*, 2444 (1), 012014.
7. Benyathiar P., Dolan K., Mishra D.K.\*, 2022. Optimal design of complementary experiments for parameter estimation at elevated temperature of Food Processing. *Foods*, 11 (17), 2611.
8. Sawale M., Cheng X., Drolia R., Benyathiar P., Ozadali F., Bhunia A., Mishra, D.\*, 2022. Inactivation kinetics of *Bacillus atrophaeus* in liquid hydrogen peroxide for aseptic package sterilization, *LWT - Food Science and Technology*, 170, 114074
9. Rawat A., Benyathiar P., Ozadali F., Mishra D.K.\*, 2022. Novel Rapid Cooling System Design and Modeling for Continuous Flow Food Processing Systems. *LWT-Food Science and Technology*, 165, 113752
10. Benyathiar P., Kumar P., Carpenter G., Brace J., Mishra D.K., 2022. Polyethylene Terephthalate (PET) Bottle-to-Bottle Recycling for the beverage industry: A review. *Polymers*, 14, 2366.



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11. Sawale M., Ozadali F., Valentine C.J., Benyathiar P., Drolia R., Mishra D.K.\* , 2022. Impact of bovine lactoferrin fortification on pathogenic organisms to attenuate the risk of infection for infants. *Food Control*, 139, 109078.
12. Muniandy A., Benyathiar P., Mishra D.K.\* , Ozadali F. 2021. Dynamic experimental design using sensitivity coefficients for the determination of thermal properties during rapid heating process. *Foods*. DOI: 10.3390/foods10081954
13. Mehta H.N., Benyathiar P., Mishra D.K.\* , Varney M. 2021. Complementary experiments for parameter estimation in heat transfer model. *Food and Bioproducts Processing*.
14. Rivera F., Mishra D.\* , Ozadali F., Benyathiar P. 2021. Fouling Layer Determination in Food Manufacturing with a Non-Intrusive Continuous Sensor (NICS). *Sensors*. 21, 1271.
15. Benyathiar P\*, Selke S, Harte B., Mishra D.K. 2020. The effect of Irradiation Sterilization on Poly(Lactic) Acid Films, *Journal of Polymers and the Environment*.
16. Benyathiar P\*, Harte B, Harte J. 2020. Shelf-life extension of fresh asparagus using modified atmosphere packaging and vacuum skin packaging in microwavable tray systems, *Journal of Packaging Technology and Science*. 33 (10): 407-415, DOI: 10.1002/pts.2511
17. Benyathiar P, Selke S\*, Auras R. 2016. The effect of gamma and electron beam irradiation on the biodegradability of PLA films, *Journal of Polymers and the Environment*, 24 (3): 230-240.
18. Benyathiar P, Selke S\*, Auras R. 2015. Effect of irradiation on the biodegradation of cellophane films, *Journal of Polymers and the Environment*, 23(4): 449-458.

## 2. Book

1. Benyathiar, P., Mishra, D. K., Szemplenski, T. E., & David, J. R. (2022). Aseptic Filling and Packaging for Retail Products and Food Service. In *Handbook of Aseptic Processing and Packaging* (pp. 171-210): CRC Press.
2. Mishra, D.K., Ozadali, F., Benyathiar, P., & David, J. R. (2022). Establishing "Validated State" of Aseptic Processing and Packaging Systems. In *Handbook of Aseptic Processing and Packaging* (pp. 355-394): CRC Press.
3. Anderson, N., Benyathiar, P., Mishra, D.K., 2020. Aseptic Processing and Packaging. In: Demirci A., Feng H., Krishnamurthy K. (ed), *Food Safety Engineering*. Springer. pp 661-692
4. Sidhu, J.S., Zafar, T., Benyathiar, P., Nasir, M., 2022. Chapter 15: Production, Processing and Nutritional Profile of Chickpeas and Lentils. In: Siddiq M. and Uebersax M.A. (ed), *Dry Beans and Pulses Book*, 2nd Edition

## 3. Patent

- Mishra D. K., Ozadali F., Benyathiar P., Muniandy A., 2018. Innovative technology for shelf-life prediction of food and beverages