



## New trends in active edible food packaging with biopolymers and natural agents

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### Abstract:

Active edible packaging employing biopolymers and natural agents provides a unique opportunity to control microbial and oxidative changes in raw, minimally processed and ready-to-use food products. However, the design and formulation of an effective antimicrobial and antioxidant edible material by use of fully natural components is really a challenging process since it needs careful selection of natural components (biopolymers, plasticizers, active agents etc.), microbial target(s), and controlled release strategies considering the targeted food application (Yemenicioğlu et al., 2020; Boyacı and Yemenicioğlu, 1999). This presentation includes recent trends and state-of-the-art strategies applied to develop active edible films, coatings and pads that are formed by fully natural components and are really effective in the food system. Methods of achieving controlled release such as morphological tailoring (e.g. composites, blends, emulsions etc.), modification of hydrophilic/hydrophobic properties, cross-linking, encapsulation etc.; and methods of boosting active properties (e.g. use of hurdle concepts and synergetic interactions) have been presented with realistic examples of food applications. Emerging concepts such as activate-at-home type packaging and bioactive packaging are also discussed to increase attention in innovative potential of active packaging (Boyacı et al. 2016). This presentation focuses on expanding the horizons of scientists working in the fields of active packaging and natural active agents.

### Biography:

Ahmet Yemenicioğlu took his PhD in 1998 from Department of Food Engineering at Ankara University where he joined to research team of Prof. BekirCemeröllu. His studies during PhD had focused on protein purification and enzyme kinetics. He worked as a post-doctoral fellow between 1998 and 1999 in the same Lab. With his original findings about enzyme activation-inactivation kinetics and with a collaborative research about degradation kinetics of natural color compounds, research team he involved was awarded with a science encouragement award (at 1997) and a science award (at 2000) by Ankara University Senate, respectively. In 1999, Dr. Yemenicioğlu was



transferred to Izmir Institute of Technology (IYTE) where he has been continuing his carrier with studies related to antimicrobial enzymes, active packaging, and functional properties of food hydrocolloids. He was the former founding director of Biotechnology and Bioengineering Research and Applications Center at IYTE (2007-2013). He is still working in IYTE as a full-time professor and has published more than 50 papers in reputed international journals, books and encyclopedia.

### Recent Publications:

1. Ahmet Yemenicioğlu et al; Natural hydrocolloids in the food sector - Recent applications beyond conventional uses, 2020.
2. Ahmet Yemenicioğlu et al; An innovative design and application of natural antimicrobial gelatin based filling to control risk of listeriosis from caramel apples, 2020.
3. Ahmet Yemenicioğlu et al; Development of gel-based pads loaded with lysozyme and green tea extract: Characterization of pads and test of their antilisterial potential on cold-smoked salmon, 2020.
4. Ahmet Yemenicioğlu et al; Decontamination of seeds destined for edible sprout production from *Listeria* by using chitosan coating with synergetic lysozyme-nisin mixture, 2020.
5. Ahmet Yemenicioğlu et al; Development of pectin-eugenol emulsion coatings for inhibition of *Listeria* on webbed rind melons: a comparative study with fig and citrus pectins, 2019.

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