



## Seminars in Biotechnology BTEC 592 & BTEC 692

### “Extremophiles for the Production of Biobased Materials”

**Thursday, April 15, 2021**

**13:30**

**Online Seminar**

**Prof. Dr. Dilek KAZAN**

Marmara University,

Faculty of Engineering, Department of Bioengineering



Dilek Kazan completed her undergraduate studies in 1983 at the Department of Chemical Engineering at Istanbul Technical University. After receiving her PhD in 1993, she worked a Senior Research in The Scientific and Technological Research Council of Turkey (TUBITAK), MAM, Genetic Engineering and Biotechnology Institute. In 2001, she moved to Marmara University, Department of Chemical Engineering and then Department of Bioengineering. Dr. Kazan's research ranges from Chemical Engineering to Bioprocess Engineering. Her research interests are in white biotechnology, bioprocess engineering, biobased materials and omic technologies. She has published over 50 refereed journal articles, 100 conference proceedings, as well as book chapters and 3 patents. Recently, she founded Bacpolyzyme Bioengineering Ltd. Şti. to commercialize her research product. Within the knowledge gained from the projects and research activities performed, her most important mission is to achieve research activities through using bioprocess engineering tools within the green chemistry approach to contribute to the creation of sustainable environment and society.

#### **Abstract**

Nowadays, global warming, climate change and environmental degradation force private sectors, and governments to invest a lot of money for the development of bioprocesses based on biomass utilization for the production of biobased materials. Therefore, the valorization of biomass to produce a wide variety of bio-based materials with remarkable properties, biodegradability, and recyclability become substantial for the future of the bio-economy. Although different attempts have been made to produce high value added products from biomass to replace fossil-based products, the development of sustainable and competitive bio-based materials is still at an early stage because of low productivity compared to unsustainable counterparts. In order to manufacture desired products from microorganisms efficiently; design of microbial cell, development and optimization of processes are at the core to increase productivity. However, the drawbacks of the design and development of bioprocesses are their high cost and long time scales. To overcome these obstacles, recently, system biology approach has been used to re-design the existing microbial of the cells. This talk will present a summary of biobased materials, extremophiles and system biology approach used to develop extremophiles for the production of biopolymers. Moreover, audience will hear about the unique metabolic pathways for the production of biological polyesters, enzymes responsible for the synthesis of biopolymers from extremophiles, and evaluation of whole genome to understand the physiology of the extremophiles.

#### **References:**

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