

## TAL 797 – Seminário

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### DEVELOPMENT OF A COLORIMETRIC PLATFORM BASED ON POLYDIACETYLENE FOR THE DETECTION OF *Pseudomonas spp*

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The early identification of contaminating and infectious microorganisms is essential for control measures to be taken in industry and hospital environments. Platforms used for pathogen detection, therefore, must provide quick, sensitive responses and be applied without the need for skilled labor and/or sophisticated equipment for their execution. In this context, polydiacetylene (PDA) vesicles consist of polymer sensors that can be polymerized by UV, without the need for catalysts. They can be produced from different lipid compositions and associated with receptors, initially appearing in blue. The color of the suspension changes in the presence of the target molecule, migrating to pink/red, due to the disturbance in the structure of the vesicles caused by the transition of electrons from the conjugated backbone. Therefore, PDA vesicles can be used as transducer platforms for biosensors, since the colorimetric transition can be quantified and associated with the concentration of the target molecule in solution. Due to these characteristics, several studies have been developed, especially in the area of smart packaging, using PDA vesicles. In our project, these vesicles will be associated with the tail protein of a bacteriophage and the system will be used to verify the presence of *Pseudomonas spp.* in suspensions, food matrices and on surfaces containing biofilms. The PDA vesicles allow the direct application of vesicles for the detection of bacteria in food systems, despite the diverse complexity of

food matrices, and presents itself as a fast and practical way of detecting pathogens, so the food industry can apply this analysis as routine ensuring food security.

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