Internship in Food Engineering

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Project	**Ozonation Technology in Food Engineering:** **Ozonation in the mushrooms and sprouts cultivation**
Description	Raw vegetable sprouts are high-risk food safety products and are often involved in foodborne disease outbreaks. In these products, microbial contamination can come from contaminated seeds and irrigation water. Fresh mushrooms are another example of a fresh product that can be contaminated by pathogenic microorganisms, with *Listeria monocytogenes*, *Salmonella* and enterohemorrhagic *Escherichia coli* being the most prevalent pathogens. Some technologies have already been studied to control the air of food processing environments in order to reduce contamination, such as ozonization and the use of UV-C lamps. Although these technologies are already widely used in the pharmaceutical industry and in the health area in the world, they are still considered emerging in the food industry and very little used, including in Brazil. Studies related to fluid dynamics of gas dispersion and evaluation of the impact on efficacy on microbial destruction still remain as little explored aspects. In addition, detailed studies of process parameters, such as application time, concentrations necessary for the elimination of microorganisms and quality maintenance, are specific to each application and have been little investigated in the cultivation of mushrooms and vegetable sprouts, being restricted to a few species or varieties.
Tasks	This project aims to evaluate the effectiveness of technological alternatives of decontamination of closed environments with the use of ozone, focusing on the identification of ozone application parameters for the effective sanitization of mushroom and vegetable sprout farming environments. The project seeks to present technological solutions and can be applied in industrial environments of food production and storage. The ozone dispersion fluid dynamics in the air and its efficiency in the destruction of microorganisms in plant sprouts and mushroom cultivation environments can be evaluated and the effects on product quality can be investigated.
Requirements	Students of chemical engineering, food engineering, biology, agronomy, environmental engineering and other related areas. General knowledge of chemistry laboratory.
Language Skills	English (Portuguese would be nice, but is not necessary).
Duration	4-6 months
Possible Beginning	February/March or July/August.
Credits	According to agreement
Payment	None