

# Active antioxidant packaging to preserve the quality of minimally processed fruits and vegetables

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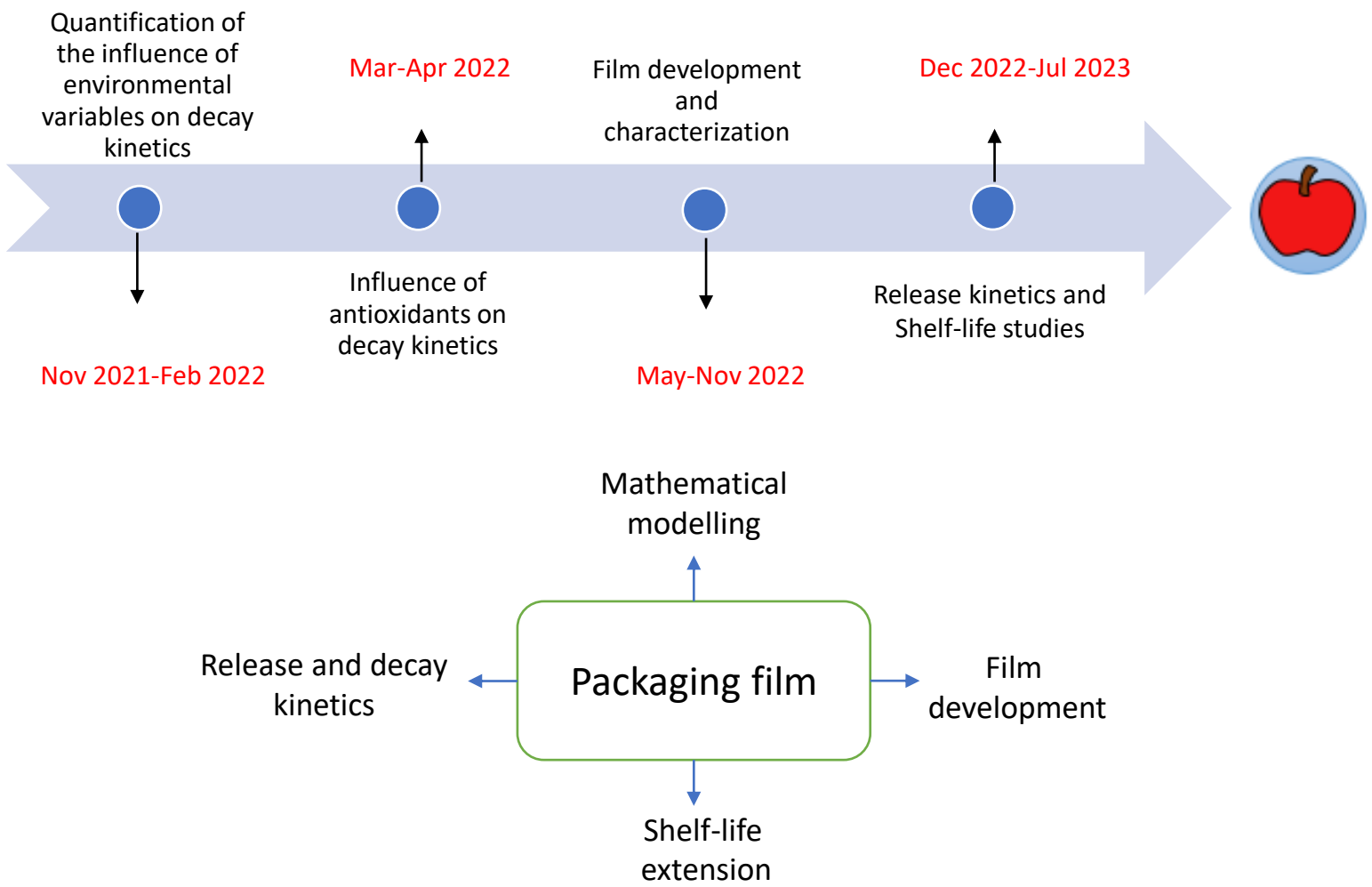
## Abstract

For the packaging to be effective in shelf-life extension of the product, the release kinetics of the active compound from active packaging must be of the same magnitude as of decay kinetics of the food to be preserved. Thus, an adequate knowledge of decay kinetics and how it can be slowed down by the active compound is essential to design an antioxidant package by using mathematical modelling. The aim of this PhD project is to study the minimally processed fruits and vegetables (F&V) in order to design an active package capable of preserving the nutritional quality and extending its shelf life.

## State of the Art

Over the years, the demand for consumption of minimally processed F&V has increased. However, minimally processed produce is more perishable as compared to original raw materials and have a shelf life of several days as compared to several weeks or months of raw produce due to presence of cut surfaces, active metabolism of tissues, microbial growth due to cross contamination and removal of outer protective layer (Siroli *et al.*, 2015). Considering the above facts, a holistic approach in terms of development of an active packaging form is required to preserve the intrinsic quality of fresh produce (Contini *et al.*, 2011). Although extensive research has been carried out on active packaging technologies has been undertaken to highlight the benefits for specific food product, however, many of these technologies have not yet been implemented successfully in commercial food packaging systems. Since limited literature is available on designing active antioxidant packaging, thus, the aim of this PhD project is to study the minimally processed F&V in order to design a package capable of preserving the nutritional quality.

## Objectives and Milestones



### References

Siroli L, Patrignani F, Serrazanetti DI, Gardini F, Lanciotti R (2015) Innovative strategies based on the use of bio-control agents to improve the safety, shelf-life and quality of minimally processed fruits and vegetables. *Trends Food Sci. Technol.*, **46(2)**:302-310.

Contini C, Katsikogianni MG, O'Neill, FT, O'Sullivan M, Dowlin DP, Monahan FJ, (2011) Development of active packaging containing natural antioxidants. *Procedia Food Sci.*, **1**:224-228.