

TITLE: ALGINATE-BASED EDIBLE COATINGS ELABORATED WITH *Piper nigrum* ESSENCIAL OIL APLIED IN MINIMALLY PROCESSED PINEAPPLES

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ABSTRACT:

As minimally processed fruits are very practical, their consumption has been increasing significantly in recent years, receiving ready acceptance from consumers. Nonetheless, it is known that processing of fruits promotes physiological deterioration, biochemical alterations and microbial degradation. Edible coatings have been shown as a safe alternative to reduce the effects of minimally processed fruits. Therefore, the goal of this project was to develop and evaluate the acceptance of a sodium alginate-based edible coating elaborated with *Piper nigrum* essential oil, aiming to extend the lifetime and the safety of minimally processed pineapples during cold storage. To execute this project, the Minimal Inhibitory Concentration (MIC) of the *Piper nigrum* essential oil was tested against *Escherichia coli*, *Staphylococcus aureus*, *Bacillus cereus* e *Penicillium commune*. Subsequently, the edible coating was fabricated, applied to minimally processed pineapples infected with the microorganisms mentioned. For 15 days, the morphology was evaluated and the macrobiotic growth studied. The thermotolerant coliform count was evaluated and the presence of *Salmonella* on the coated pineapple slices investigated. It was verified that the essential oil of *Piper nigrum* presented results of MIC for *E. coli* of 1.56%, for *S. aureus* of 12.5%, *B. cereus* of 25% and *P. commune* of 12.5%. The morphological analyzes of the cross sections of the covered samples showed the edible coating is uniform and homogeneous, covers the entire surface of the fruit and does not present defects. When analyzed for 15 days there was no observed microorganism growth on the pineapple slices. The developed coatings obtained satisfactory results, promoting the reduction of microbial activity in minimally processed pineapple.

Keywords: Sodium alginate, *Piper nigrum*, Essential oil

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