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# *LACTOBACILLUS PLANTARUM* FERMENTATION OF CARROT, BEETROOT, AND PLUM JUICE INDUSTRY BYPRODUCTS: HPLC PROFILING OF PHENOLICS

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## ABSTRACT

Industrial juice pressing generates massive pomace waste (20–50% of raw mass) [1]. This study evaluated the phenolic profile of carrot (*Daucus carota* L.), beetroot (*Beta vulgaris* L.), and plum (*Prunus domestica* L.) pomaces via *Lactobacillus plantarum* ATCC 8014 fermentation across 48 hours (monitored by HPLC). *L. plantarum* drove changes in the pomaces profile: degrading complex phenolics and betalain pigments while accumulating free phenolic monomers (e.g., gallic, p-coumaric, and cinnamic acids). Microbial fermentation holds potential to upcycle industrial pomace into functional ingredients aligned with circular bioeconomy principles.

## INTRODUCTION

- *Lactobacillus plantarum* ATCC 8014 is a highly versatile, facultative heterofermentative lactic acid bacterium. It is highly adaptable to plant-based substrates [2] and possesses the enzymes necessary to metabolize complex plant compounds, such as juice industry pomaces and enhance their nutritional profile [3].
- Objective: track the evolution of phenolic compounds in carrot, beetroot, and plum pomaces during *L. plantarum* fermentation, aiming to upcycle industrial waste into functional ingredients.

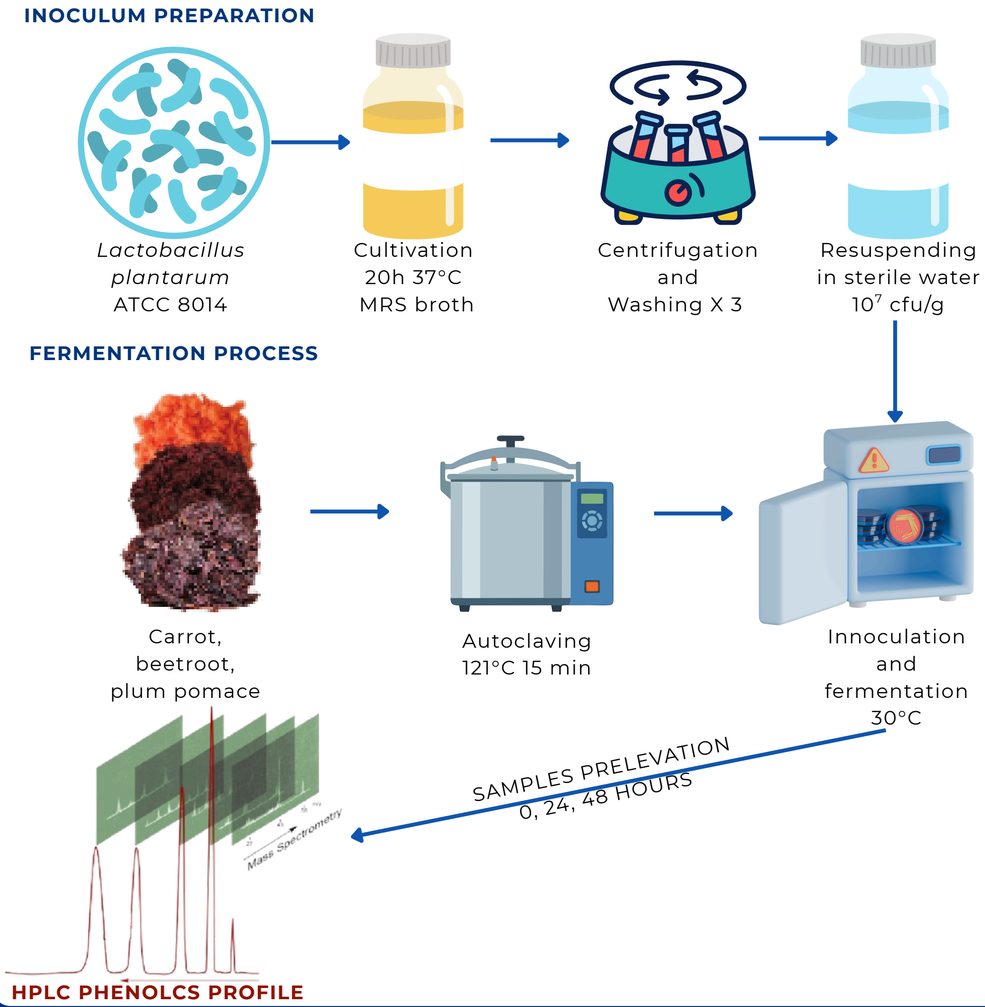
## CONCLUSION

- *L. plantarum* serves as a highly effective tool for upcycling pomace into potentially functional, value-added ingredients.
- Future Directions: Research should focus on shorter fermentation intervals (specifically 12 hours) to maximize the retention of individual polyphenols.

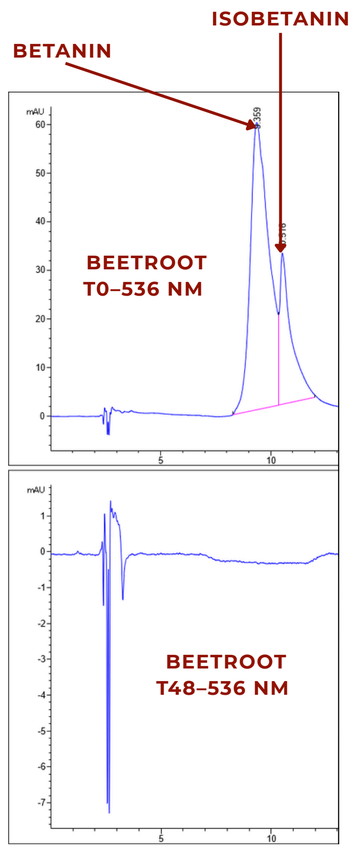
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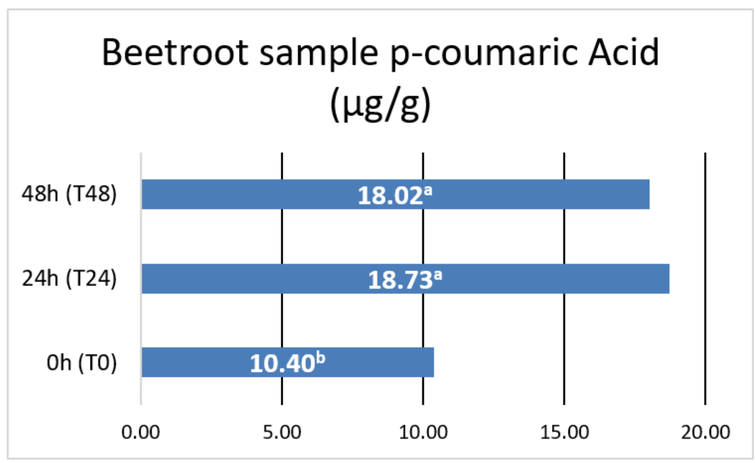
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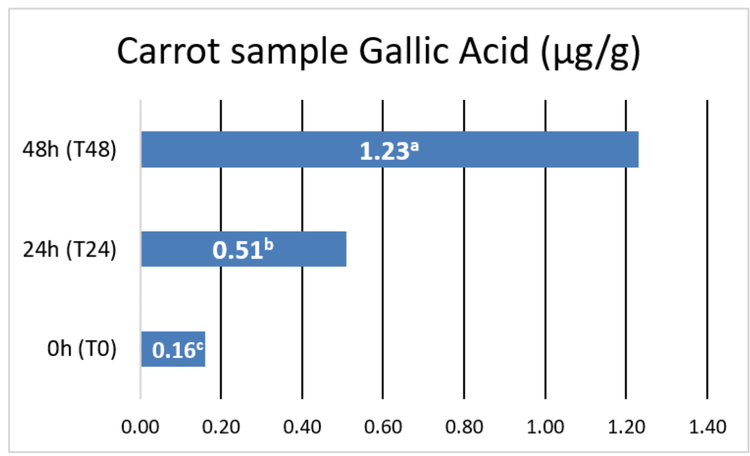
## METHODOLOGY




## RESULT




Values with different letters within the same column are significantly different ($p < 0.05$)

## ACKNOWLEDGMENT

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