

## Sustainable use of apple pomace as a new functional ingredient due to their enhanced antioxidant and prebiotic properties

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### INTRODUCTION & AIM

The attributes of apple pomace (AP) are undergoing extensive investigation to promote a sustainable circular economy while offering consumers health-enhancing food products. Despite its abundance, AP remains an underutilized resource, replete with valuable bioactive compounds. In this study, the focus was on understanding AP's antioxidant and prebiotic potential.

### METHODOLOGY

#### Prebiotic potential:

- *Lactobacillus casei*;
- *Lactobacillus plantarum*;
- *Lactobacillus acidophilus* LA-5;
- *Bifidobacterium animalis* spp. lactis Bb12;
- Positive controls (glucose, inulin, and fructooligosaccharides (FOS)).

#### Antioxidant activity:

- Ability to inhibit the formation of thiobarbituric acid reactive substances (TBARS) in brain cell homogenates;
- Oxygen radical absorbance capacity (ORAC).

### RESULTS & DISCUSSION

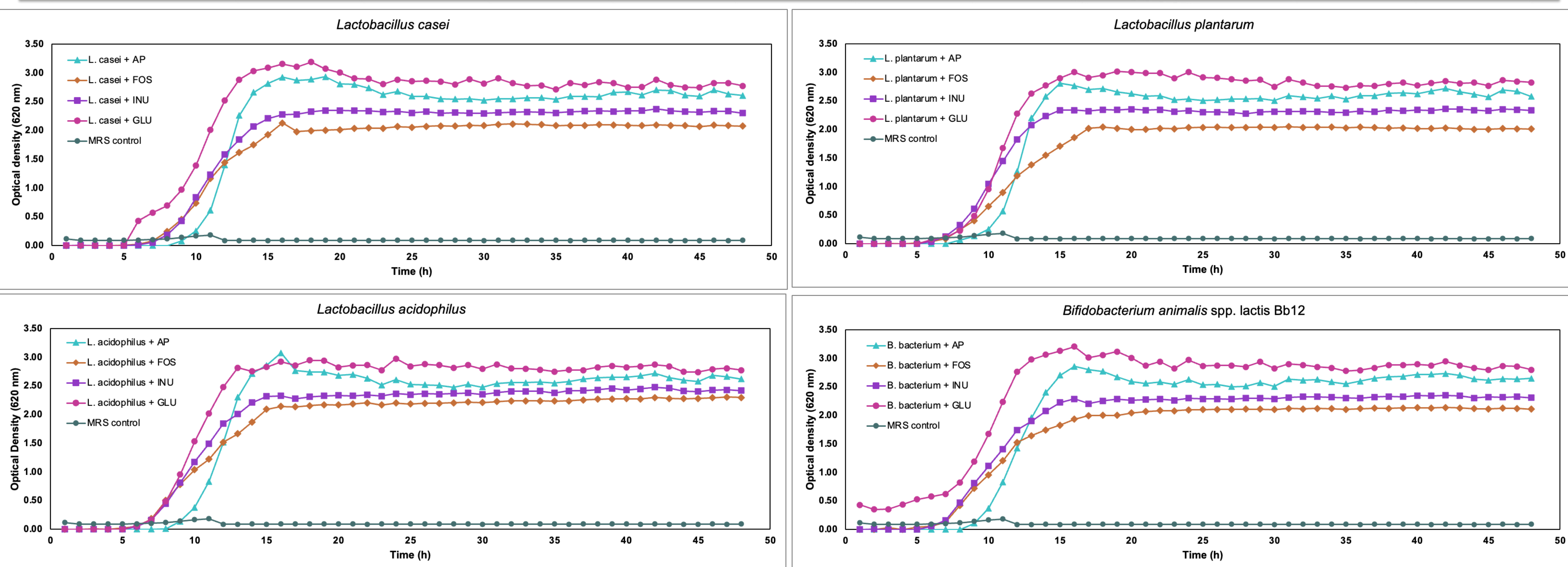


Figure 1 – Growth curve of microorganisms cultivated in MRS broth supplemented with 2% (w/v) of apple pomace (AP), FOS, inulin or glucose.

EC<sub>50</sub> TBARS: 646 µg/mL

ORAC: 161 µmol TE/g (trolox equivalent)

### CONCLUSIONS

This study proved that AP can be an effective carbon source for various probiotic strains, promoting their growth even more effectively than well-known prebiotics, such as FOS and inulin. These findings display the potential of AP for inclusion in dietary supplements and health applications aimed at improving gut health, simultaneously contributing to the implementation of circular economy principles.

### ACKNOWLEDGMENTS

This work was supported by national funds through FCT/MCTES (PIDDAC): CIMO, UIDB/00690/2020 (DOI: 10.54499/UIDB/00690/2020) and UIDP/00690/2020 (DOI: 10.54499/UIDP/00690/2020); and SusTEC, LA/P/0007/2020 (DOI: 10.54499/LA/P/0007/2020). The authors are grateful to FEDER Cooperación Interreg VI A Espanha – Portugal (POCTEP) 2021-2027 for financial support through the project TRANSCoLAB PLUS 0112\_TRANSCoLAB\_PLUS\_2\_P. The authors also thank the National funding by FCT- Foundation for Science and Technology, through the institutional scientific employment program-contract with L. Barros, and the individual scientific employment program-contract with F.S. Reis (2021.03728.CEECIND) and J.C.M. Barreira (CEEICIND/04479/2017). National funding by FCT, Foundation for Science and Technology, through the individual research grant (UI/BD/153745/2022) of L.A. Pascoalino.