

Lyophilization as technological strategy to improve the survival of *Faecalibacterium prausnitzii* DSM 17677 at ambient air



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PORTO

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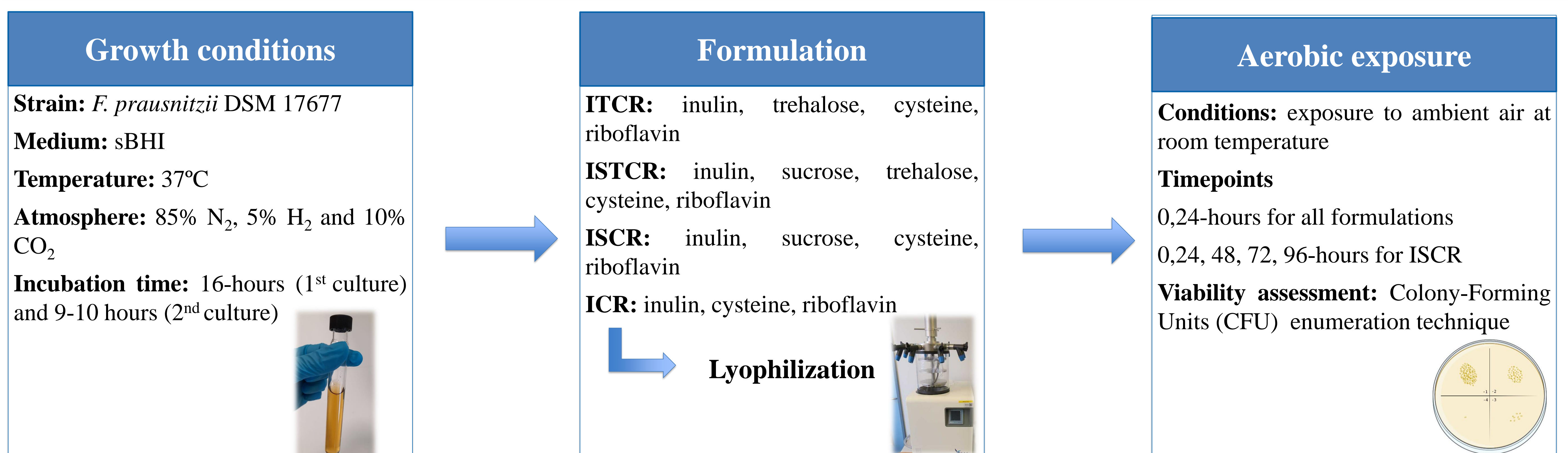
Introduction/Resume

Faecalibacterium prausnitzii is a strict anaerobic bacterium and a gut commensal proposed as a **next generation probiotic** given its promising outcomes in the treatment and prevention of inflammatory illnesses [1]. Despite of multiple beneficial effects, its **strict anaerobic** nature has created serious **limitations** in its **cultivation** and **handling**, and consequently hampering its clinical application, namely in development of functional **foods**, **nutraceutical** and **biotherapeutic** products [2,3].

Objectives

In the present study, **lyophilized** formulations containing prebiotics, cryoprotectants and antioxidants agents were explored as a technological **strategy** to improve the **survival** of *F. prausnitzii* DSM 17677 strain under **aerobic** environments.

Methods



Results

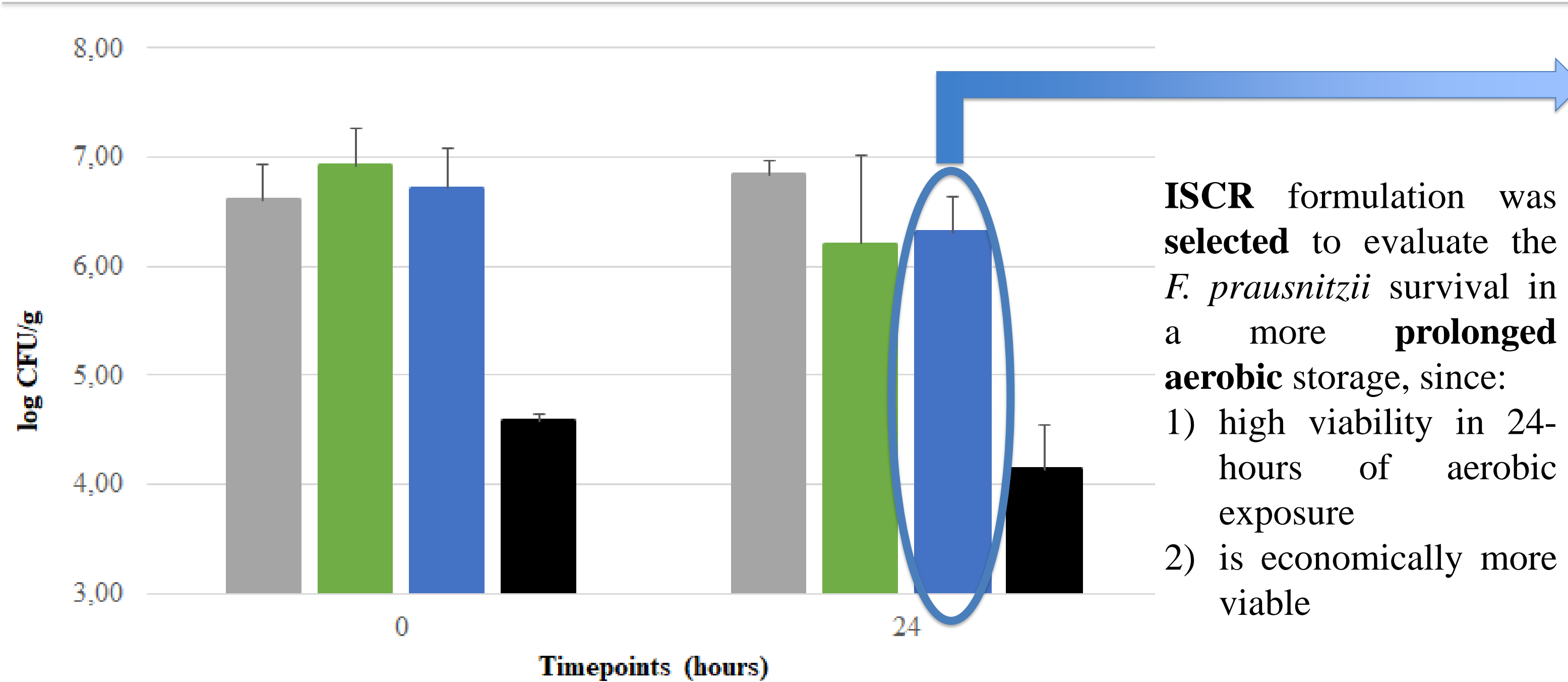


Figure 1. Viability of *F. prausnitzii* DSM 17677 incorporated in different freeze-dried formulations (grey: ITCR; green: ISTCR; blue: ISCR and black: ICR) after 24-hours of aerobic exposure.

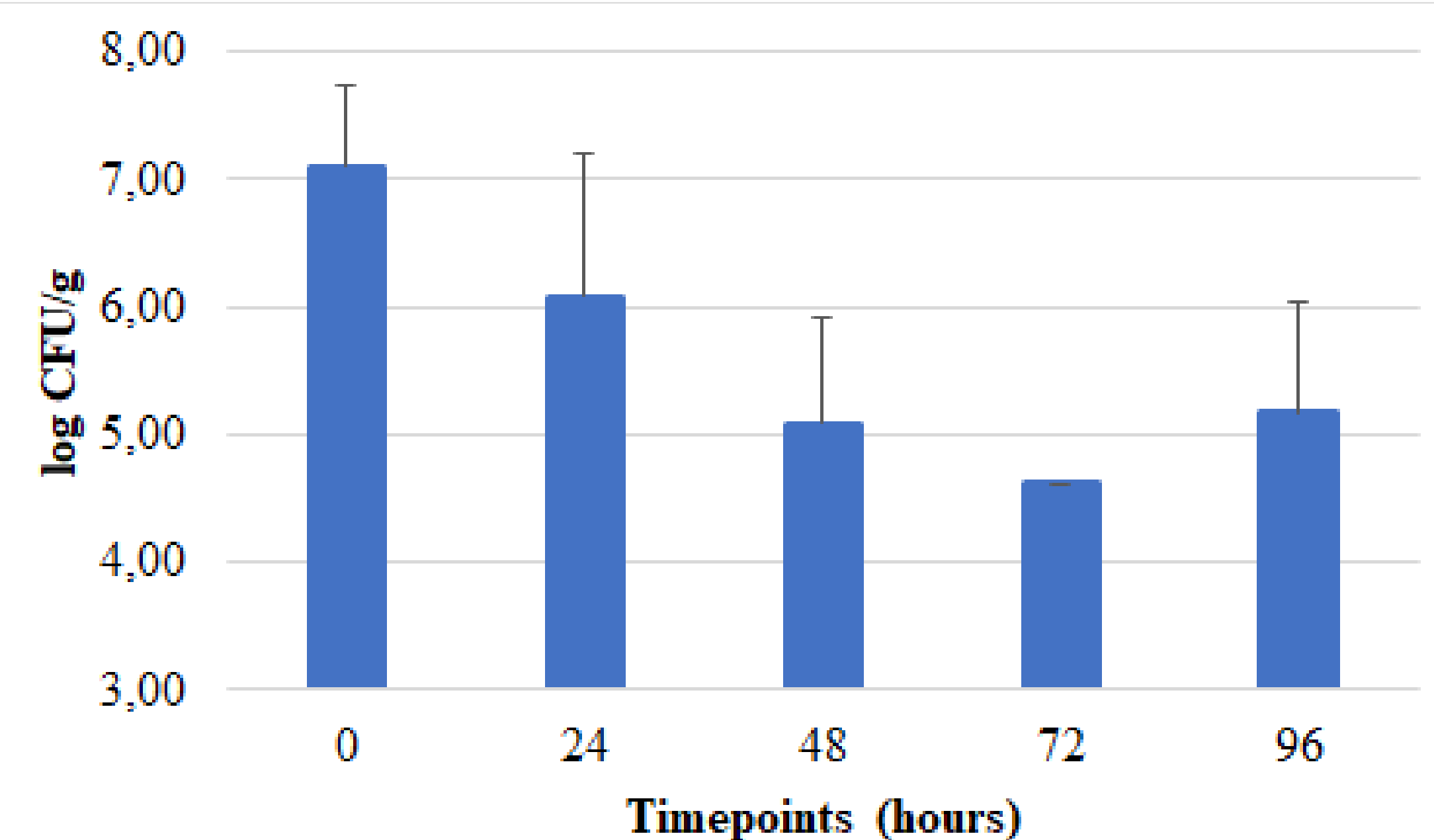


Figure 2. Viability of *F. prausnitzii* DSM 17677 incorporated in ISCR freeze-dried formulation during aerobic storage at room temperature throughout 96-hours.

Conclusions

Lyophilized formulation containing inulin, sucrose, cysteine, and riboflavin (ISCR) presents as a protective strategy to improve the survival of *F. prausnitzii* under aerobic environments.

References

- [1] Almeida et al (2020). <https://doi.org/10.1080/10408398.2019.1599812>
- [2] Andrade et al (2020). <https://doi.org/10.3389/fbioe.2020.00550>
- [3] Khan et al (2014). <https://doi.org/10.1371/journal.pone.0096097>

Acknowledgements

This work was supported by national funds through FCT/MEC (PIDDAC), project references IF/00588/2015, the Scientific Employment Stimulus - Individual Call (CEEC Individual) - CEECIND/00520/2017/CP1404/CT0001, and by Operational Program Competitiveness and Internationalization in its FEDER component and by the budget of the Foundation for Science and Technology, I.P. (FCT, IP) in its OE component, project reference POCI-01-0145-FEDER-031400-PTDC/BAA-AGR/31400/2017. We would also like to thank the scientific collaboration under the FCT project UIDB/50016/2020.



FCT Fundação para a Ciência e a Tecnologia

Cofinanciado por: COMPETE 2020

PORTUGAL 2020

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