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Development of a Synthetic Microbial Community for Producing A Sardinian Functional Acid-Alcoholic Dairy Beverage

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1 AIM

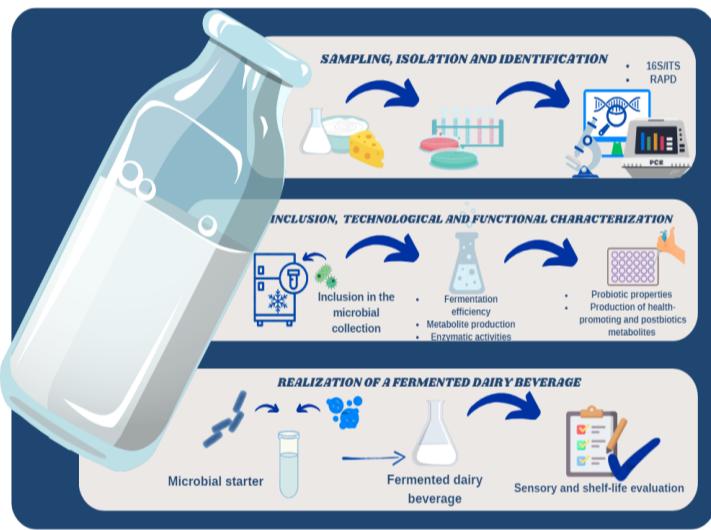
This PhD project aims to develop a synthetic microbial community for producing a functional acid-alcoholic dairy beverage, enhancing traditional Sardinian products like "Gioddu" while maintaining high quality standards. Yeasts and lactic acid bacteria will be isolated, with a focus on yeasts, from Sardinian dairy products, characterized, and selected for their technological and functional properties, and added to the University of Sassari's Microbial Collection (MBDS-UNISSCC).



2 STATE OF THE ART

In recent years, interest in fermented dairy beverages has increased due to their health benefits. Controlled fermentations using selected lactic acid bacteria (LAB) and yeasts have replaced inconsistent traditional methods¹. LAB improve shelf life and gut health, while yeasts enhance flavor, though their health-promoting potential remains underutilized². Multi-kingdom starter cultures could boost the quality and appeal of traditional products like Sardinian "Gioddu"³.

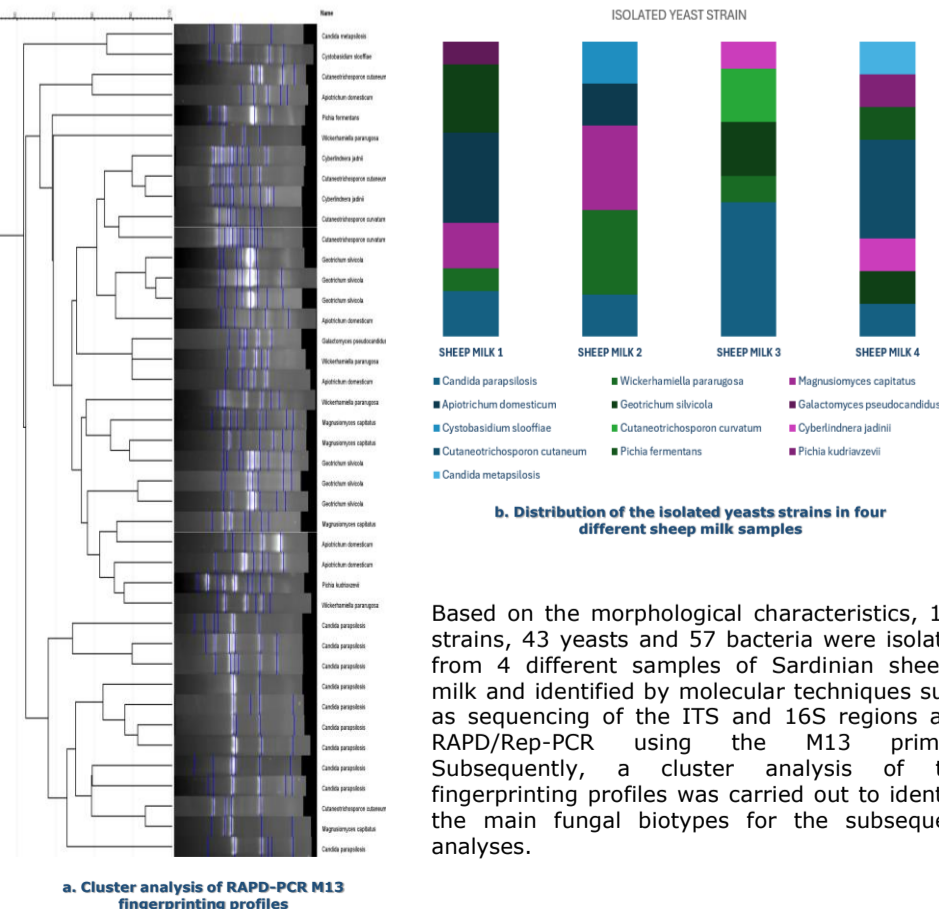
3 PLAN DESIGN



4 GANTT

Activity	Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36			
A1) Bibliographical research																																								
A2) Sampling																																								
A3) Isolation and identification																																								
A4) Inclusion																																								
A5) Safety assessment																																								
A6) Technological characterization																																								
A7) Functional characterization																																								
A8) Development of a multi-species microbial starter																																								
A9) Realization of a fermented dairy beverage																																								
A10) Sensory evaluation and shelf-life																																								
A11) Thesis and Paper Preparation																																								

5 PRELIMINARY RESULTS



6 CONCLUSIONS

- Deepening knowledge on lactic acid bacteria-yeast interactions
- MBDS-UNISSCC microbial collection enrichment
- Developing a synthetic microbial community to serve as a fermentation starter
- Technology transfer

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