

Microbial biodiversity of fermented foods: a nutritional, cultural, and economic resource

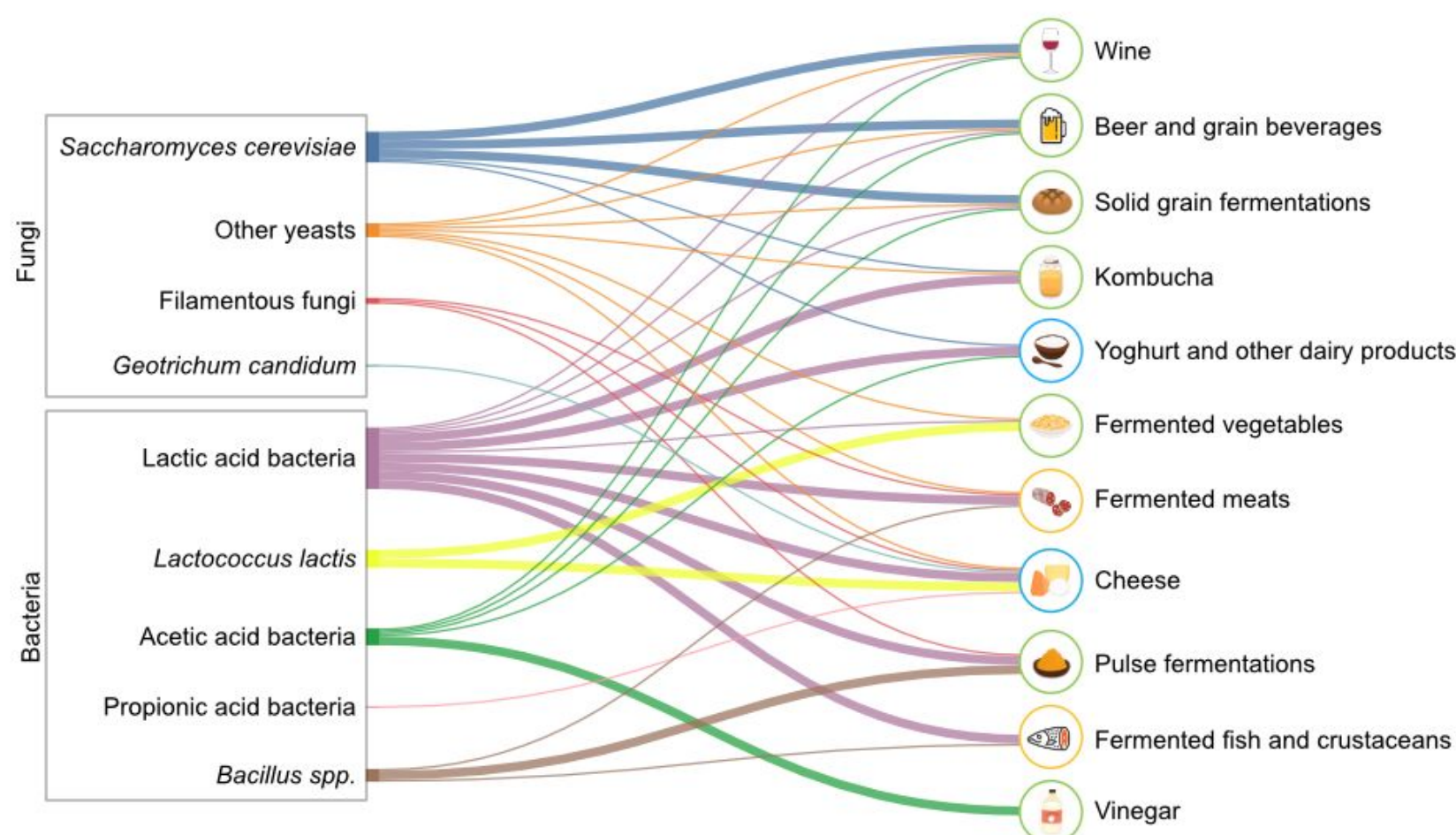
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1 Motivation & Method

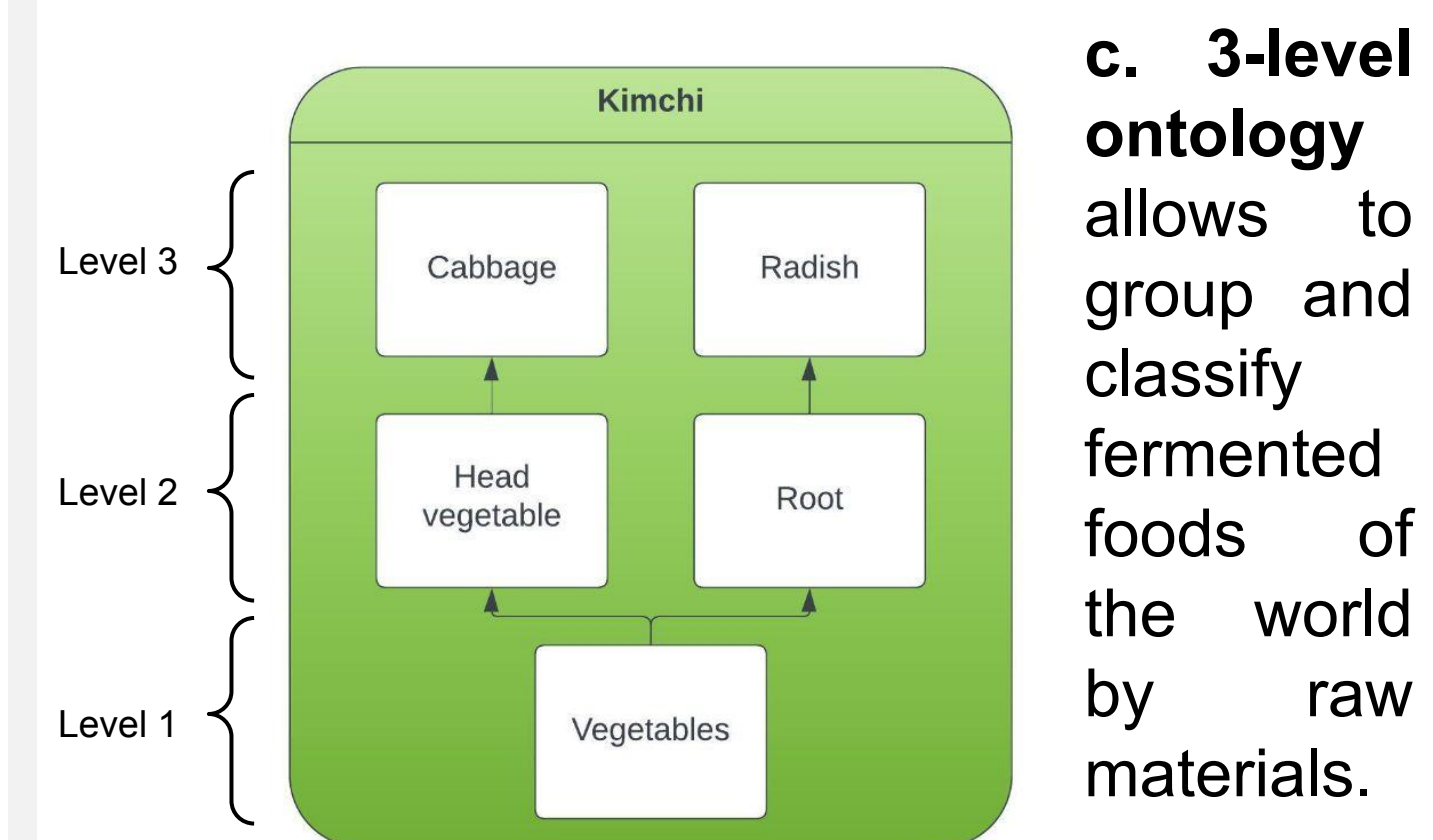
Fermented foods and beverages have been a part of the human diet for thousands of years, and play an important nutritional, cultural and economic role in most human societies to this day. Fermented foods harbor diverse microbial communities, originating either from raw ingredients and environment, or from microbes purposefully added with starter cultures. Differences in ingredients, local practices, and environmental conditions can impact these microbial communities, resulting in distinct flavors, textures, and nutritional properties of final products. However, global changes in food production practices and dietary preferences threatens to limit the vast biodiversity of traditional fermented foods, most of which have not even been characterized to date.

To gain a systematic knowledge in the field of fermented foods we reviewed (i) the aspects of global consumption, (ii) the diversity and relevance of associated microorganisms, factors influencing the assembly of microbial communities and dispersal thereof, (iii) methods to study food microbiomes, as well as (iv) future perspectives on studying and conserving traditional food fermentations.

2 Results



b. Outline the functional and taxonomic diversity of microorganisms in fermented foods and their role in creating distinct characteristics.



c. 3-level ontology allows to group and classify fermented foods of the world by raw materials.

a. Curated dataset of fermented foods around the world that contains descriptions based on reliable sources of information, geographic characterization and raw materials while providing the names in English and the original language.

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3 Conclusion

Some of the traditional fermented foods are endangered which requires **policy** and the **intervention of biobanks** to preserve valuable samples.

Revalorization of fermented foods as a source of beneficial microorganisms that have the potential to improve human health.

Identification of **key microorganisms** in fermented foods and design of novel foods.

4 Contribution to Sustainable Food Systems



A framework for the study of diverse foods that harbor microorganisms beneficial for health.



The importance of underrepresented and historically oppressed groups for the production of the fermented foods is highlighted.



Traditional fermented foods are locally produced for consumption within families and communities.