

Innovations in gluten-free bread - Marc Sañé Puigví - February 13, 2023

OBJECTIVES

- To identify innovations that have been studied since 2020 in order to improve gluten-free bread quality.
- To categorize these innovations.

Table 1: Classification of innovations in gluten-free bread since 2020

Innovations	Type of improvements	Are there by-products?
Flours	Organoleptic and nutritional	Yes/no
Starches	Organoleptic	No
Hydrocolloids	Organoleptic	Yes/no
Emulsifiers	Organoleptic	No
Enzymes	Organoleptic	No
Proteins	Organoleptic and nutritional	Yes/no
Fibers	Organoleptic and nutritional	Yes/no
Fruits	Organoleptic and nutritional	Yes/no
Vegetables	Organoleptic and nutritional	Yes
Microalgae	Nutritional	No
Dairy products	Organoleptic and nutritional	Yes/no
Probiotics	Organoleptic and nutritional	No
Pollen	Nutritional	No
Production processes	Organoleptic	-

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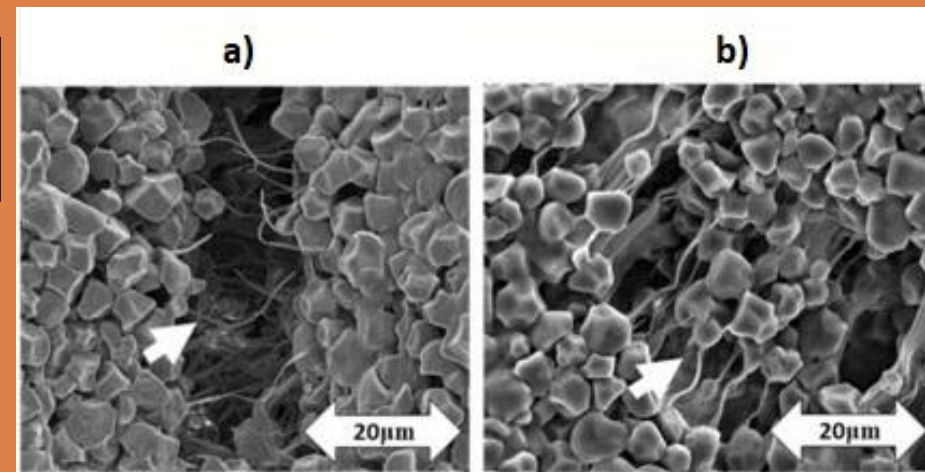


Figure 1: Scanning electron microscopy images of doughs with a) starch and zein and b) starch and gluten. (Adapted from Federici et al. 2021)

CONCLUSIONS

- It has not yet been possible to find an alternative that emulates gluten functionality.
- There has been a trend towards the utilization of by-products.
- Some of the innovations had already been studied more than three years ago and the others have started to be studied during the last three years.
- The compiled innovations can not be extrapolated to every gluten-free bread recipe because they have been investigated in a specific type of gluten-free bread and/or associated with other ingredients.

References

Federici, E., Selling, G. W., Campanella, O. H., & Jones, O. G. (2021). Thermal treatment of dry zein to improve rheological properties in gluten-free dough. *Food Hydrocolloids*, 115, 106629.