

Fortification of traditional fermented milk “Lben” with date powder: physicochemical and sensory attributes

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Session: Food Processes

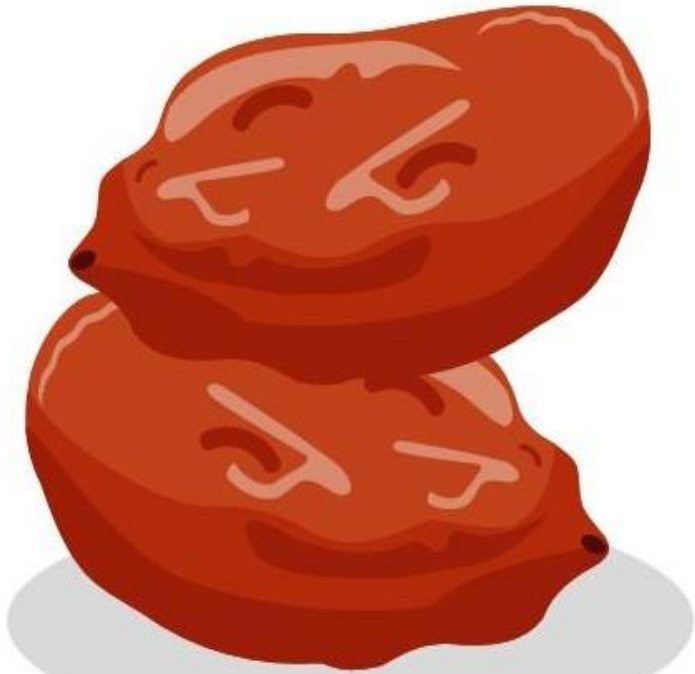
MOTIVATION

High nutritional value

- Carbohydrates
- Dietary fibre
- Proteins
- Lipids and fatty acid
- Vitamins and minerals

Functional effects

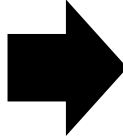
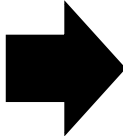
- Protect against many chronic diseases
- Inhibit the growth of pathological organisms
- Enhance the digestive process



MOTIVATION



Fresh date fruit



Honey/Syrup



sugar



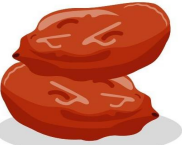
vinegar



juice



Dried powder



OBJECTIVES

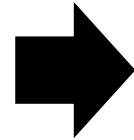


To investigate some techno-functional and antioxidant properties of date powder



To study the effect of date powder supplementation on the physicochemical and sensory properties of Lben (fermented milk).

METHODOLOGY

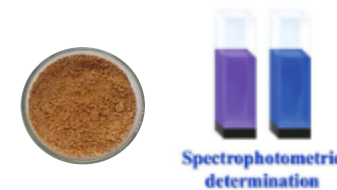


Date powder of Deglet Nour variety
(Boudjebel S.A. VACPA)

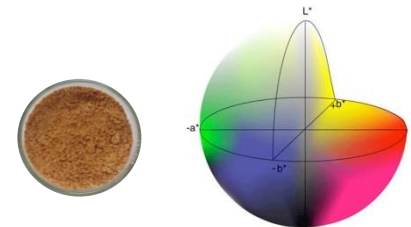
Techno-functional properties : water holding capacity,
oil holding capacity and milk holding capacity
bulk density



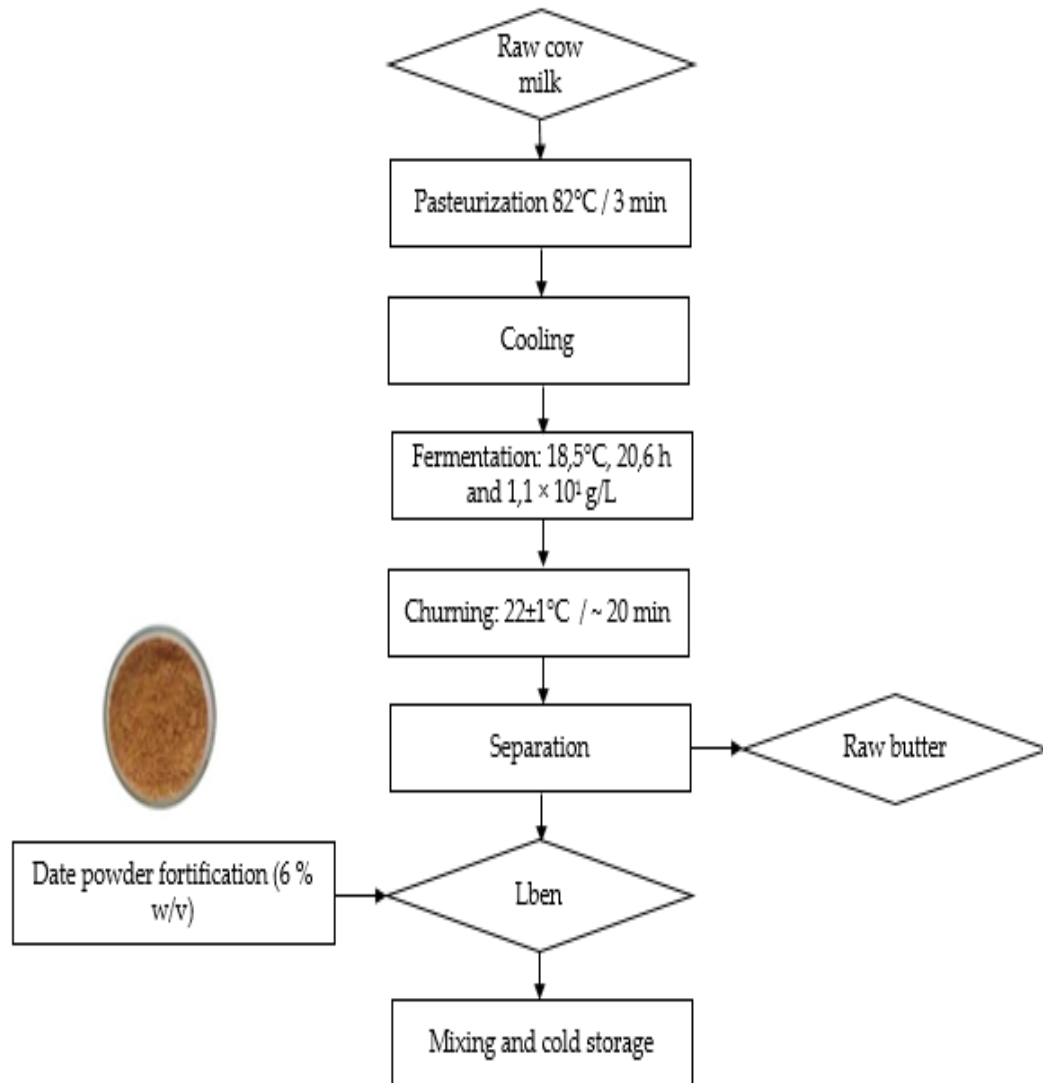
Phenolic, flavonoids contents and antioxidant activity



Color parameters C.I.E. L*a*b*



METHODOLOGY



- pH
- Acidity
- Lactic bacteria
- Color parameters
- Sensory analysis

RESULTS

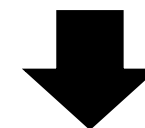
Date powder characterisation

Evaluated parameters	Value*
WHC (mL/g)	2.0±0.2
OHC (mL/g)	1.7±0.5
MHC (mL/g)	1.7±0.2
Bulk density (g/cm ³)	0.45±0.05
Total phenolic content (mg GAE/100 g _{db})	751.75±0.03
Total flavonoids content (mg QE/100g _{db})	385.39±0.04
DPPH scavenging capacity (%)	55.3±0.9
Color parameters	
L*	63.4±1.7
a*	19.1±0.5
b*	29.9±0.08

No significant difference between holding capacities of date powder have been found in water, milk and corn oil

Lower bulk density

Higher total phenol content (TPC) total flavonoids content (TFC) and antioxidant activity



Suitable ingredient with several nutritional and functional properties.

RESULTS

Effect of date powder supplementation on physicochemical and sensory attributes of Lben

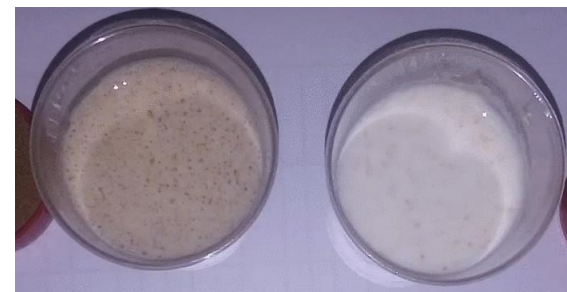
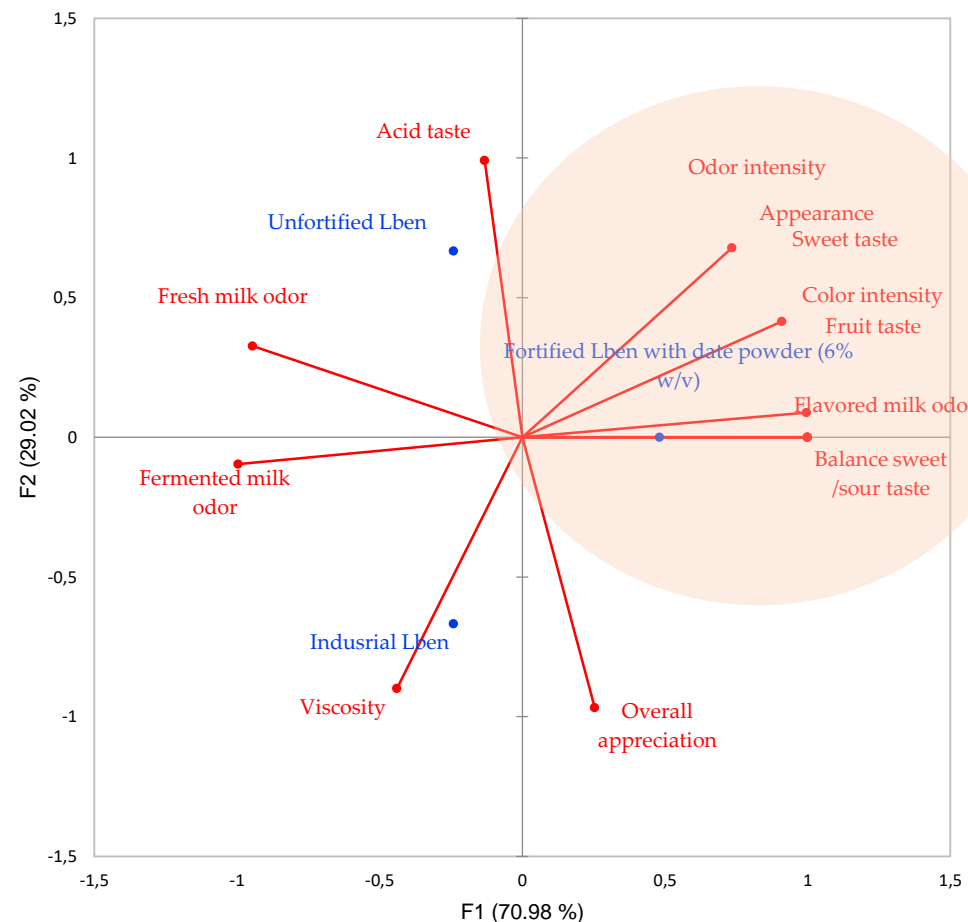
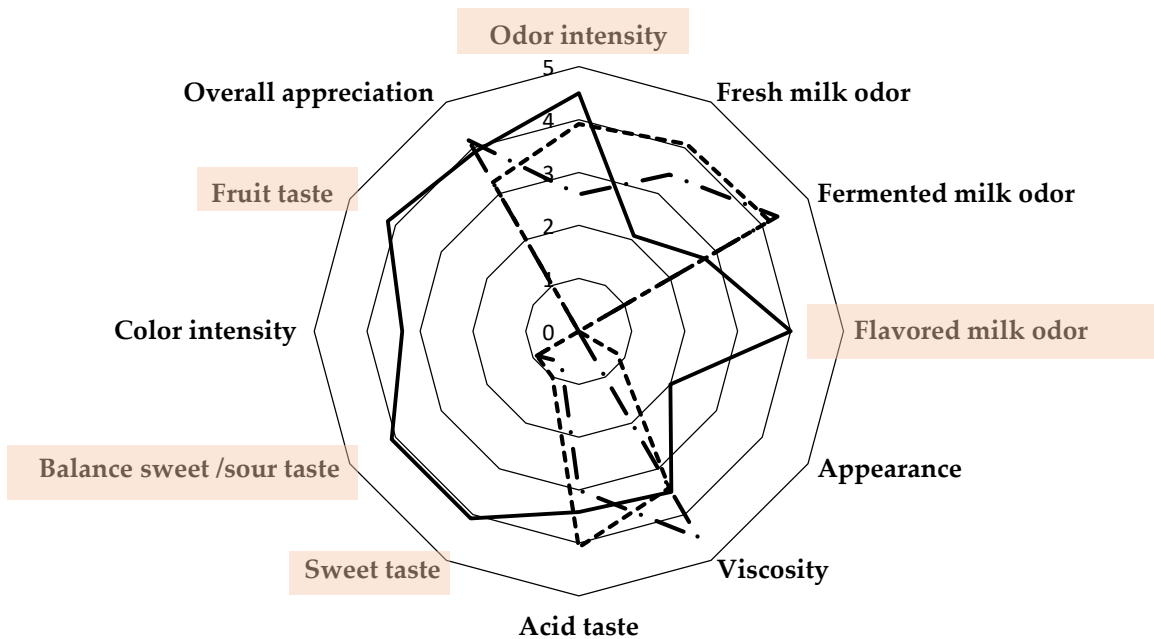
Evaluated parameters	pH	Acidity	Lactic bacteria (log CFU/mL)	Color parameters			
				L*	a*	b*	ΔE
Unfortified Lben	4.5±0.01 ^b	84.1±1.6 _a	9.28	79.1±0.4 ^a	-1.8±0.8 ^c	3.1±0.1 ^b	0.76
Lben fortified with date powder (6% w/v)	4.6±0.01 ^a	76.4±2.3 _b	8.18	63.4±0.9 ^b	4.5±0.2 ^a	12.1±0.1 ^a	19.00
Industrial Lben	4.4±0.01 ^c	87.7±3.8 _a	5.71	79.1±1.7 ^a	-1.1±0.4 ^b	2.95±0.2 ^c	-

The increase of pH with a decrease of acidity values of Lben after fortification

Inhibition effect of date powder on the viability of lactic bacteria could be attributed to phenolic content

Increase of a* and b* values with a decrease of lightness parameter L*.

RESULTS



The enhancement of overall appreciation with a significant contribution to the development of sweet taste, odor taste and flavored milk odor

CONCLUSIONS



- Date powder proved to be a good ingredient for food supplementation with multifunctional properties**
- The Fortification of Lben with date powder allowed to an increase of pH with a decrease of acidity values and a slight decrease of lactic bacteria count**
- Sensory attributes were significantly affected after fortification due to date compositions : odor, flavor and taste are the main affected descriptors**
- The present work contributes to the valorization of date powder by fortification of dairy product**

ACKNOWLEDGEMENTS

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- ❑ Boudjebel S.A. VACPA industry



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