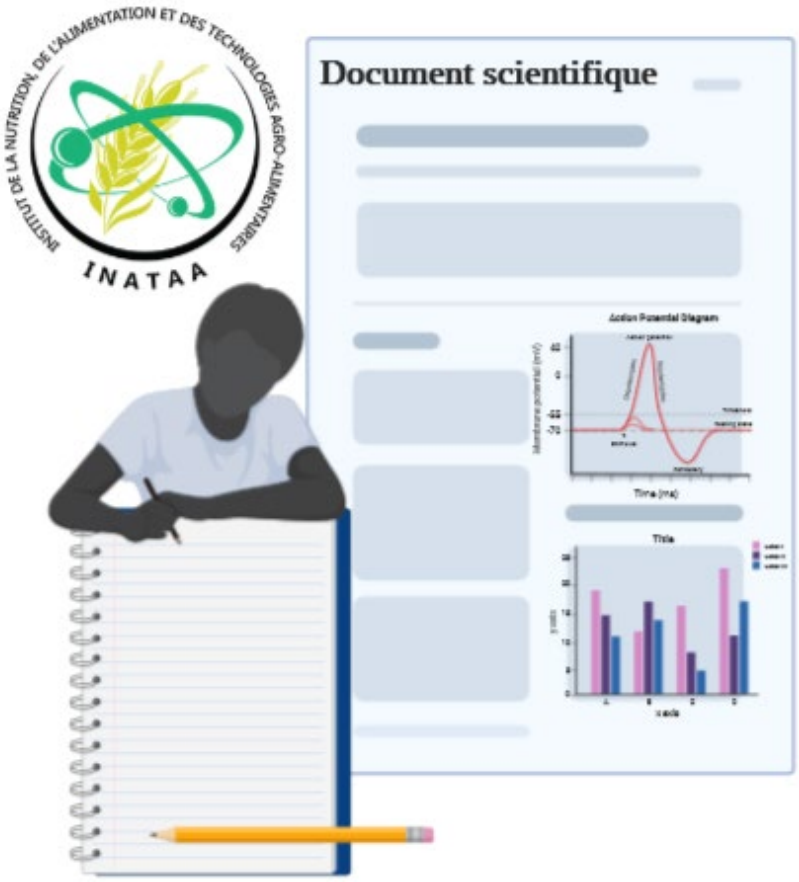
Université Constantine 1 Frères Mentouri
Institut de la Nutrition, de l'Alimentation et des Technologies Agro-alimentaires
1e année Licence Sciences Alimentaires

Matière

Expressions écrites et orales

https://telum.umc.edu.dz/course/view.php?id=3292



Contenu de la matière (cours-TD) :

- La messagerie électronique
- La communication orale
- La présentation écrite (le CV) et la lettre de motivation
- Le document scientifique
- La structure IMReD
- Les illustrations scientifiques
- Les références bibliographiques
- **L'article scientifique et la veille documentaire**
- La communication affichée (poster)
- La présentation orale

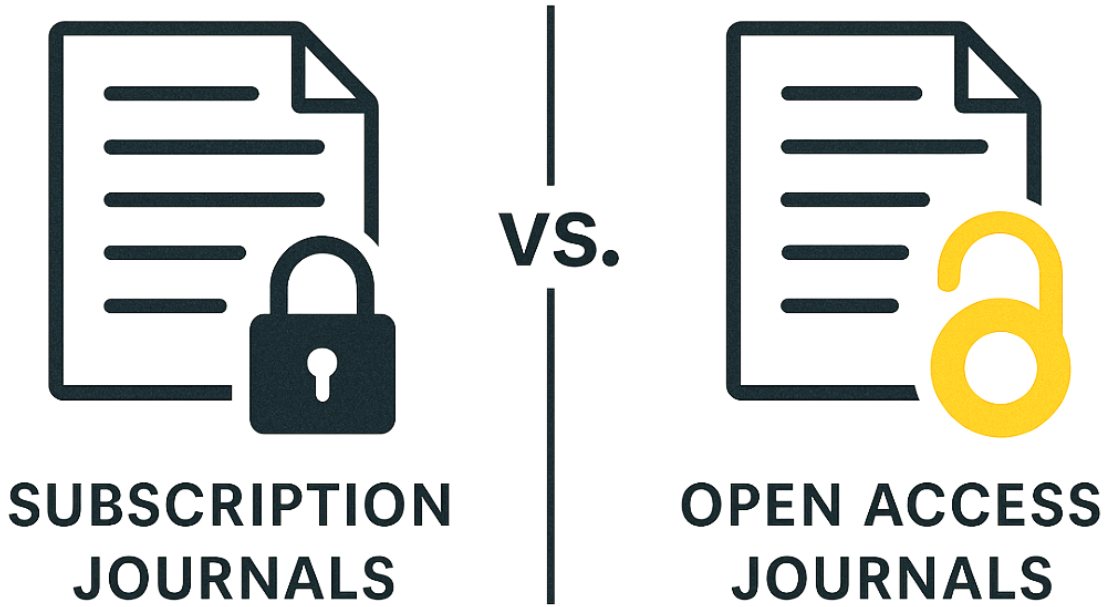
TD07. L'article scientifique et la veille documentaire

Un **article de recherche scientifique** (*scientific research article*) est un document académique court (le plus souvent en **anglais**) qui :

- Présente les résultats d'une étude originale menée par des chercheurs d'un domaine scientifique spécialisé.
- Est publié dans une **revue scientifique (périodique)** spécialisé du même domaine.
- Est évalué avant publication par un **comité de lecture (*peer-review*)** d'experts du même domaine (des **pairs**), garantissant :
  - → rigueur méthodologique
  - → validité scientifique
  - → reproductibilité de l'étude

- Les articles de recherche évalués par les pairs constituent la **source principale** et **la plus fiable** de **nouvelles connaissances scientifiques**, car ils sont vérifiés par d'autres experts.
- Leur validité dépend toutefois de la qualité de la méthodologie, des données et de l'analyse.
- Leur contenu est donc couramment utilisé par les pairs.

Dans le système de publication scientifique, les revues peuvent être en **accès libre (*Open Access*)** (consultation gratuite pour tous) ou **payantes**, où l'accès aux articles nécessite un abonnement ou un paiement par article.



Exemple de revues en sciences alimentaires en accès libre (*Open Access*)

Revue / Journal	Page d'accueil (site officiel)	Domaine scientifique principal
Food Production, Processing and Nutrition	https://fppn.biomedcentral.com	Production & transformation des aliments, sécurité alimentaire, nutrition, santé publique
Sustainable Food Technology	https://www.rsc.org/publishing/journals/sustainable-food-technology	Technologie alimentaire, chimie analytique & procédés alimentaires
Food Technology and Biotechnology	https://www.ftb.com.hr/	Technologie des aliments & biotechnologie alimentaire
Journal of Ethnic Foods	https://link.springer.com/journal/42779	Alimentation, spécialités culturelles / ethnologie & sciences alimentaires
Journal of Food Quality and Hazards Control	https://jfqhc.ssu.ac.ir/	Qualité des aliments & contrôle des dangers (sécurité sanitaire)
International Journal of Food Design	https://www.intellectbooks.com/international-journal-of-food-design	Design alimentaire, aspects alimentation & technologie / innovation en alimentation
Foods and Raw Materials	https://jfrm.ru/en/	Sciences des aliments (matières premières, composition, transformation)

Tous les articles ne présentent pas des résultats expérimentaux : certains résument l'état des connaissances, d'autres comparent plusieurs études ou décrivent simplement une méthode.

Les différents types d'articles scientifiques

Type d'article	Contenu principal	But / Utilité	Utilité pour un étudiant
Article de recherche (*Research Article/Original Article*)	Résultats d'une nouvelle expérimentation (IMReD)	Présenter une découverte scientifique	Lire pour comprendre une méthode et ses résultats
Revue de littérature (*Review*)	Synthèse d'études déjà publiées	Faire le point global sur un sujet	Lire pour une vision d'ensemble rapide
Méta-analyse (*Meta-analysis*)	Analyse statistique de plusieurs études	Comparer et renforcer la validité scientifique	Lire pour identifier les preuves les plus fiables
Short communication/ Letter	Résultats courts et préliminaires	Diffuser rapidement une découverte	Lire pour suivre les nouveautés
Article méthodologique (*Methods Paper*)	Description détaillée d'un protocole	Normaliser et transmettre une méthode	Lire pour apprendre une technique

Pourquoi lire des articles scientifiques ?

Un étudiant en sciences alimentaires (expérimentales) consulte des articles scientifiques pour :

- Se tenir à jour sur les avancées scientifiques.
- Comprendre des méthodes expérimentales réelles.
- Préparer une expérimentation scientifique.
- Construire une argumentation scientifique.
- Préparer un travail universitaire, projet, mémoire ou présentation orale.

Page de garde d'un article de recherche

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Métadonnées du journal

Optimization of gluten-free ice cream cone formulation with carrot powder and *Ziziphus lotus* syrup using response surface methodology

Fairouz Djeghim [a,*], Khawla Kerbab [b,c], Ibtissem Sanah [b,d], Syrine Rehioui [a], Randa Kebch [a], Maria D'Elia [e,f,g], Luca Rastrelli [e,f,**], Soued Cherak [a]

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Lien pour consulter l'exemple présenté ici :

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Métadonnées Liées aux auteurs

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Le résumé scientifique (Abstract)

Rôle :

rendre l'article compréhensible en 150-300 mots

Contenu obligatoire :

- Contexte scientifique
- Objectif de l'étude
- Méthodes principales
- Résultats clés
- Conclusion et perspectives
- **5 à 10 mots-clés** pour l'indexation documentaire

Comment lire efficacement le résumé d'un article ?

Questions à se poser :

1. De quoi traite l'étude ?
2. Quel était l'objectif ?
3. Quelles méthodes ont été utilisées ?
4. Quel résultat majeur a été obtenu ?
5. L'article est-il pertinent pour mon besoin ?

→ Si **oui**, passer à la lecture complète.

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Structure IMReD d'un article de recherche

Section	Rôle
Introduction	Présente la problématique (et hypothèse) + les objectifs de l'étude
Méthodologie	Décrit protocoles, matériels, analyses utilisés
Résultats	Description des données obtenues → texte, tableaux, figures
Discussion	Interprétation, limites, comparaison avec littérature
Conclusion	Synthèse des résultats, réponses à la problématique + perspectives
Références	Sources citées dans l'article

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Optimization of gluten-free ice cream cone formulation with carrot powder and *Ziziphus lotus* syrup using response surface methodology

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ABSTRACT

This study aimed to optimize a gluten-free ice cream cone formulation by incorporating Ziziphus lotus syrup and carrot powder to enhance nutritional value, texture, and sensory properties. A Central Composite Design under Response Surface Methodology was used to assess the effects of water volume (130–160 mL), syrup (0–100 g), and carrot powder (0–50 g) on product quality. Twenty formulations were developed and compared with a rice-based control. The models were significant ($p < 0.05$) with strong predictive performance ($R^2 = 0.85–0.98$), and the optimal formulation, 147.14 mL water, 106.30 g syrup, 11.95 g carrot powder-was validated experimentally. Compared to the control, the optimized cone showed a 9.5 % reduction in dough density, a 36 % increase in ice cream permeability time (19.06 vs. 13.11 min), and improved crispiness (4.94 vs. 4.18) and overall acceptability (8.00 vs. 6.39). It also had higher protein (5.22 % vs. 4.82 %), ash (4.00 % vs. 1.5 %), and stronger antioxidant activity (IC_{50}: 16.25 μg/mL vs. 100.08 μg/mL). Moisture content decreased from 5.03 % to 2.51 %, suggesting longer shelf life. Natural pigments in the ingredients enhanced the cone's color, offering a clean-label solution for gluten-free applications.

1. Introduction

Celiac disease (CD) is an immune-mediated enteropathy triggered by the ingestion of gluten-prolamin proteins found in wheat, rye, and barley, and affects genetically predisposed individuals. Its prevalence is steadily increasing, currently estimated to affect approximately 0.6 %–1.0 % of the global population (Catassi et al., 2012; Lionetti et al., 2015). A strict gluten-free diet remains the only effective treatment, which has led to growing demand for gluten-free products (Foschia et al., 2016). This demand extends beyond individuals with CD to include those with non-celiac gluten sensitivity, autoimmune conditions, and health-conscious consumers seeking functional foods made with natural ingredients. Among gluten-containing foods, ice cream cones, particularly waffle cones, present unique formulation challenges. Gluten contributes to the desirable texture, crispiness, and structural integrity of cones. In its absence, gluten-free cones frequently exhibit undesirable properties such as brittleness, poor expansion, limited flexibility, and lower sensory appeal. These technical limitations are often compounded

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Introduction :

Objectif :

Poser le contexte scientifique et justifier la recherche.

Contenu attendu :

- Contexte général
- Problématique et hypothèse
- Objectifs clairs et formulés explicitement

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2. Materials and methods

2.1. Materials

Rice flour and tapioca starch were purchased from a certified local farm in Constantine (Algeria), and analyzed in our laboratory for proximate composition, as detailed below. The gluten-free ice cream cones were prepared using ingredients sourced from a local and certified market in Constantine, Algeria. The rice flour contained 12.00 % moisture, 0.56 % ash, 1.00 % fat, 7.00 % protein, 78.44 % carbohydrates, and 1.00 % fiber. The tapioca starch had 10.77 % moisture and 1.50 % ash. Other ingredients included carrot powder, *Ziziphus lotus* (L.) Lam. syrup, sugar, soy lecithin, vegetable oil, salt, and sodium bicarbonate. All materials were food-grade and used without further purification.

2.2. Reagents and solvents

All chemicals and reagents used in this study were of analytical grade and were sourced from commercial suppliers. Butylated hydroxytoluene (BHT), α-Tocopherol, 1,1-diphenyl-2-picrylhydrazyl (DPPH) reagent were obtained from Sigma-Aldrich (St. Louis, MO, USA).

matic viscosity of 10^{-4} m^2/s. In the cone formulation, it replaced artificial colorants, sweeteners, and flavorings.

2.5. Ice cream cone preparation

The formulations used for preparing the gluten-free ice cream cones are listed in Table S1. The control recipe included: 100 g of rice flour, 5 g of tapioca starch, 40 g of granulated sugar, 3.5 g of vegetable oil, 1.82 g of soy lecithin, 0.1 g of sodium bicarbonate, 1 g of salt, and sufficient water to achieve the desired batter consistency. In the experimental formulations, rice flour was partially substituted with carrot powder, while granulated sugar was entirely replaced by *ziziphus* syrup. All other ingredients and procedures remained unchanged. A control sample without carrot powder or syrup was prepared for comparison.

Batter preparation involved first dissolving salt, sodium bicarbonate, sugar, or syrup in water under magnetic stirring (30 s). In parallel, oil and soy lecithin were blended to ensure emulsification. The dry ingredients (rice flour, carrot powder, tapioca starch) were then added gradually to the aqueous phase while mixing with a laboratory-grade mixer (IKA RW 20 Digital, 230 V, 50/60 Hz) at 500 rpm for 5 min to achieve a homogeneous batter. The batter was allowed to rest for 10 min at room temperature (25 ± 2 °C, RH ~50 %), then briefly stirred to restore uniformity prior to baking.

Cone baking was performed using a DGP KC-1144 waffle cone maker (1000 W power, dual cast-aluminum non-stick plates with integrated

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Fig. 1. Process steps for carrot powder preparation, including washing, slicing, air-drying, grinding, and sieving.

Fig. 2. Dried *Ziziphus lotus* (L.) Lam. fruits from the semi-arid region of Batna (Algeria) used for syrup preparation.

Table 1
Experimental matrix for gluten-free ice cream cone formulation for three factors (water, syrup, and carrot).

Trial	Coded Values			Uncoded values		
	Water (mL) X_1	Syrup (g) X_2	Carrot (g) X_3	Water (mL) X_1	Syrup (g) X_2	Carrot (g) X_3
1	0	0	1.681	145.00	66.67	50.00
2	−1	1	1	136.08	106.30	39.87
3	1	1	1	153.92	106.30	39.87
4	−1	−1	−1	136.08	27.03	10.13
5	0	−1.681	0	145.00	0.00	25.00
6	1	1	−1	153.92	106.30	10.13
7	−1.681	0	0	130.00	66.67	25.00
8	0	0	−1.681	145.00	66.67	0.00
9	1	−1	−1	153.92	27.03	10.13
10	−1	−1	1	136.08	27.03	39.87
11	1	1.681	0	145.00	133.33	25.00
12	−1	1	−1	136.08	106.30	10.13

Méthodologie :

Fonction :

Permettre à un autre chercheur de reproduire l'étude.

Doit préciser :

- Population/échantillons
- Matériel et instruments
- Protocoles expérimentaux
- Méthodes d'analyse statistique

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3. Results and discussion

3.1. Influence of independent variables on the quality of gluten-free cones

The impact of water, carrot powder, and ziziphus syrup on the quality of the 20 cone samples was presented in Table 2.

3.1.1. Effect of independent variables on dough density

In wafer production, dough density is a critical parameter as it determines the volume of dough deposited onto the baking plate (Dogan et al., 2016). Lower dough density is typically associated with better aeration, which promotes the formation of larger gas bubbles during baking, thereby increasing the final product volume (Turabi et al., 2010).

The dough samples exhibited varying densities ranging from 1.02 to 1.33 g/cm^3 (Table 2). Water showed a significant positive linear effect on dough density ($b_1 = 0.02995$), while both syrup and carrot had significant negative linear effects ($b_2 = -0.02250$, $b_3 = -0.03921$). Additionally, water exhibited a significant negative quadratic effect ($b_{11} = -0.02069$), indicating that while water initially increases dough density, the effect tends to level off at higher concentrations. However, this pattern is not uniformly reflected across all formulation points, as shown by the statistical groupings in Fig. 3.

The following multiple regression equation (4) for dough density is given by:

$$Y_1 = -5.32 + 0.0840\,X_1 + 0.00151\,X_2 + 0.0134\,X_3 - 0.000260\,X_1^2 + 0.000000\,X_2^2 + 0.000066\,X_3^2 - 0.000021\,X_1X_2 - 0.000151\,X_1X_3 + 0.000038\,X_2{}^*X_3$$

Table 2
Characteristics of gluten-free cones containing varying amounts and combinations of water, *Ziziphus lotus* syrup, and carrot powder.

Run	X_1 (ml)	X_2 (g)	X_3 (g)	Measured Responses					
				Dough density g/cm^3	Moisture (%)	Permeability (min)	Hardness	Crispness	Overall acceptability
1	145.00	66.67	50.00	1.13 ± 0.02^{f}	4.00 ± 0.00^{bc}	20.03 ± 1.23^{b}	5.50 ± 0.58^{ab}	4.75 ± 0.95^{bcd}	3.25 ± 1.89^{ef}
2	136.08	106.30	39.87	1.14 ± 0.25^{bc}	7.00 ± 0.03^{a}	20.23 ± 1.55^{ab}	4.00 ± 1.15^{abcd}	4.00 ± 0.81^{d}	5.00 ± 1.23^{c}
3	153.92	106.30	39.87	1.14 ± 0.05^{bc}	4.00 ± 0.01^{bc}	16.52 ± 2.00^{c}	5.75 ± 0.5^{a}	1.25 ± 0.5^{f}	2.00 ± 0.24^{g}
4	136.08	27.03	10.13	1.22 ± 0.00^{b}	2.00 ± 0.02^{ef}	5.50 ± 0.00^{h}	4.00 ± 0.51^{abcd}	6.00 ± 0.13^{a}	7.00 ± 0.89^{b}
5	145.00	0.00	25.00	1.18 ± 0.00^{bc}	2.00 ± 0.21^{ef}	20.52 ± 1.33^{a}	5.75 ± 0.5^{a}	6.00 ± 0.33^{a}	4.00 ± 0.88^{de}
6	153.92	106.30	10.13	1.19 ± 0.01^{d}	1.00 ± 0.00^{g}	19.50 ± 0.77^{c}	1.67 ± 0.57^{d}	5.00 ± 1.00^{abcd}	6.50 ± 0.50^{b}
7	130.00	66.67	25.00	1.02 ± 0.00^{g}	2.00 ± 0.31^{ef}	8.41 ± 0.59^{g}	3.67 ± 0.57^{bcd}	3.67 ± 0.57^{d}	4.50 ± 0.70^{cd}
8	145.00	66.67	0.00	1.27 ± 0.02^{b}	1.00 ± 0.00^{g}	6.57 ± 1.02^{fg}	3.33 ± 0.60^{cd}	5.50 ± 0.50^{ab}	8.00 ± 0.00^{a}
9	153.92	27.03	10.13	1.33 ± 0.00^{a}	1.00 ± 0.00^{g}	10.46 ± 1.23^{e}	3.33 ± 0.15^{cd}	5.25 ± 0.28^{abc}	7.50 ± 0.70^{ab}
10	136.08	27.03	39.87	1.16 ± 0.01^{cd}	1.00 ± 0.00^{g}	17.15 ± 0.44^{b}	3.87 ± 1.00^{abcd}	4.42 ± 0.55^{bcde}	5.18 ± 1.00^{c}
11	145.00	133.33	25.00	1.14 ± 0.00^{bc}	4.00 ± 0.55^{bc}	19.23 ± 0.46^{c}	4.44 ± 2.12^{abc}	4.30 ± 1.15^{cde}	4.58 ± 0.89^{cd}
12	136.08	106.30	10.13	1.15 ± 0.03^{bc}	2.00 ± 0.03^{ef}	18.54 ± 0.55^{d}	4.50 ± 0.71^{abc}	3.83 ± 1.50^{de}	3.38 ± 1.23^{def}
13	160.00	66.67	25.00	1.18 ± 0.00^{bc}	2.00 ± 0.06^{ef}	18.35 ± 1.12^{def}	4.33 ± 1.12^{abc}	4.00 ± 1.00^{de}	4.50 ± 0.50^{cd}
14	153.92	27.03	39.87	1.15 ± 0.00^{bc}	4.00 ± 0.09^{bc}	15.50 ± 1.03^{f}	4.22 ± 0.19^{abc}	4.30 ± 0.30^{cde}	4.00 ± 0.87^{de}
15	145.00	66.67	25.00	1.18 ± 0.01^{bc}	6.00 ± 0.05^{ab}	18.30 ± 1.09^{de}	4.33 ± 0.57^{abc}	4.00 ± 1.00^{de}	4.00 ± 0.21^{de}
16	145.00	66.67	25.00	1.18 ± 0.04^{bc}	6.00 ± 0.25^{ab}	18.38 ± 0.32^{de}	5.00 ± 1.41^{abc}	3.50 ± 0.70^{e}	4.00 ± 1.41^{de}
17	145.00	66.67	25.00	1.17 ± 0.21^{bc}	6.00 ± 0.21^{ab}	18.29 ± 0.15^{defg}	3.33 ± 0.47^{cd}	5.00 ± 1.41^{abcd}	4.00 ± 1.40^{de}
18	145.00	66.67	25.00	1.18 ± 0.00^{bc}	6.00 ± 0.12^{ab}	18.03 ± 0.56^{efg}	5.00 ± 1.50^{abc}	4.00 ± 1.00^{de}	3.82 ± 1.41^{de}
19	145.00	66.67	25.00	1.18 ± 0.04^{bc}	6.00 ± 0.00^{ab}	18.08 ± 1.19^{efg}	4.00 ± 1.15^{abcd}	4.00 ± 0.13^{de}	3.50 ± 0.57^{def}
20	145.00	66.67	25.00	1.18 ± 0.00^{bc}	6.00 ± 0.40^{ab}	18.00 ± 0.39^{g}	5.00 ± 1.00^{abc}	3.66 ± 0.58^{e}	3.25 ± 0.5^{ef}
P	/	/	/	<0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001

The table provides the measured responses for dough density, moisture content, ice cream permeability, hardness, crispiness, and overall acceptability. Means with different letters within the same column are statistically different ($P < 0.05$). X_1 represents water (ml), X_2 represents syrup (g), and X_3 represents carrot powder (g). Statistical analysis was performed to determine significant differences across formulations.

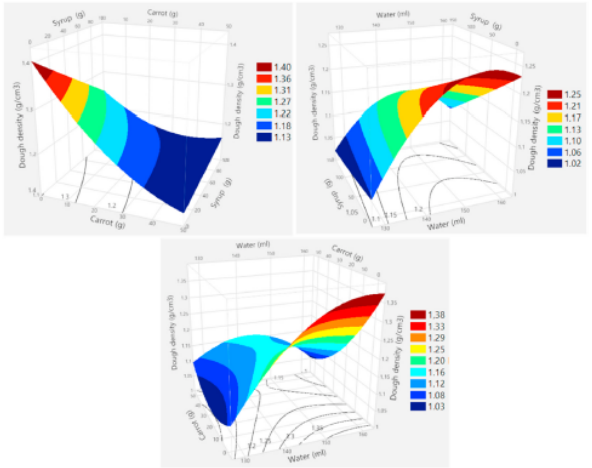

Fig. 3. Three-dimensional response surface plots showing the effect of water, syrup, and carrot powder levels on dough density. Carrot powder and syrup had a decreasing linear effect, while water exhibited a non-linear influence on density.

Résultats :

- Présentation brute et interprétable des données.
- Formes courantes : tableaux, histogrammes, courbes, images.
- Aucune interprétation ici → juste les faits.

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Table 5
IC_{50} values of samples and reference antioxidants in the DPPH assay.

Sample	IC_{50} (μg/mL) ± SD
Ziziphus lotus syrup	9.13 ± 0.11
Carrot powder	19.91 ± 0.37
Optimized gluten-free cone	16.25 ± 0.32
Control gluten-free cone	100.08 ± 0.84
BHT	12.99 ± 0.17
α-Tocopherol (Vitamin E)	13.02 ± 0.26

IC_{50}: concentration required to inhibit 50 % of DPPH radicals; lower IC_{50} values indicate higher antioxidant activity.

In ice cream permeability testing, cones from the optimized formulation displayed significantly greater resistance to ice cream penetration compared to the control cones. The control cones disintegrated in 13.11 min, while the optimized cones withstood penetration for 19.06 min before degradation. This enhanced performance is attributed to the presence of syrup in the formulation, which structurally reinforces the cones and slows down ice cream penetration.

Sensory assessment showed that the gluten-free cones from the optimized formulation exhibited superior texture compared to the control gluten-free cones (Table 7). They were crispier (score of 4.94 versus 4.18 for the control), less hard (score of 3.5 versus 5.5 for the control), and more acceptable to panelists (score of 8 versus 6.39 for the control). According to Sule et al. (2019), adding carrot powder to dough improves its aroma and flavor, with an optimum at 15 %. Beyond this level, a slight sensory decline is observed.

The improved textural properties of the optimized cones can be attributed to the high fiber content of the carrot powder. A higher fiber content contributes to a crispier and less hard texture in the cone. This finding is supported by studies such as those of Kushwaha et al. (2023), who found that cones made with jackfruit seed flour had a crisp texture, and Dom et al. (2020), who observed similar results with cones produced from sweet potato peel.

The study also revealed that the control cone was lighter in color (higher L* value) than the cone made with carrot powder and syrup, as shown in Fig. 10. Conversely, the optimized gluten-free cone, which included both carrot powder and syrup, was the darkest (lowest L* value of 66.84), reddest (highest a* value of 9.69), and yellowest (highest b* value of 59.23). This darker and yellower color of the optimized cone resulted from the natural coloring provided by the added syrup and carrot powder. An increase in sugar concentration leads to faster browning due to the Maillard reaction, which contributes to the color and aroma of baked products.

4. Discussion

The development of gluten-free ice cream cones that exhibit both desirable sensory attributes and acceptable structural integrity remains a significant challenge. This study employed response surface methodology (RSM) to optimize the formulation of gluten-free cones

Table 7
Evaluation of physical, antioxidant, nutritional, and sensory differences between control and optimized gluten-free cone formulations.

Characteristics	Control Gluten-Free Cone	Optimized Gluten-Free Cone
Moisture (%)	5.03 ± 1.09^{a}	2.51 ± 0.05^{b}
Protein (%)	4.82 ± 0.23^{b}	5.22 ± 0.05^{a}
Fat (%)	0.10 ± 0.00^{b}	0.75 ± 0.01^{a}
Fiber (%)	38.98 ± 0.11^{b}	38.45 ± 0.23^{a}
Ash (%)	1.50 ± 0.7^{b}	4.00 ± 0.00^{a}
Carbohydrates (%)	49.66	49.07
Dough density (g/cm^3)	1.11 ± 0.00^{a}	1.09 ± 0.00^{a}
Permeability (min)	13.11 ± 2.83^{b}	19.06 ± 0.78^{a}
Hardness	5.50 ± 0.52^{a}	3.50 ± 0.54^{b}
Crispness	4.18 ± 1.30^{b}	4.94 ± 0.39^{a}
Overall acceptability	6.39 ± 1.34^{b}	8.00 ± 0.70^{a}
L*	78.95 ± 7.09^{a}	66.84 ± 8.16^{b}
a*	-2.57 ± 6.87^{b}	9.69 ± 1.75^{a}
b*	28.96 ± 3.25^{b}	59.23 ± 3.87^{a}

L* indicates lightness, a* represents the red/green coordinate, and b* the yellow/blue coordinate. Means with different letters within the same row are statistically different ($P < 0.05$).

Fig. 10. Visual comparison between gluten-free cone formulations: (a) optimized cone enriched with carrot powder and *Ziziphus lotus* syrup; (b) control cone based on rice flour. The optimized cone exhibits a darker color due to natural pigments and Maillard browning, reflecting the influence of added functional ingredients.

Discussion :

- Analyse et interprétation des résultats.
- Comparaison avec d'autres études.
- Limites de l'étude + pistes d'amélioration.
- Réponse ou non à l'hypothèse initiale.

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5. Conclusion

This study demonstrated the feasibility and effectiveness of incorporating *Ziziphus lotus* syrup and carrot powder into a gluten-free ice cream cone formulation to enhance its nutritional, functional, and sensory quality. Using response surface methodology (RSM), an optimized formulation, comprising 147.14 mL of water, 106.30 g of syrup, and 11.95 g of carrot powder, was developed. This formulation yielded cones with superior antioxidant activity, improved structural integrity, and greater consumer acceptability compared to a traditional gluten-free control. The addition of carrot powder enhanced protein, fat, and ash content while reducing carbohydrate levels. Meanwhile, *Ziziphus lotus* syrup contributed to decreased moisture content, supporting improved shelf-life potential. Physically, the cones exhibited lower dough density and increased resistance to ice cream penetration. Sensory results revealed favorable textural attributes, with reduced hardness and increased crispiness, contributing to overall acceptability. Importantly, the natural colorants from the syrup and carrot eliminated the need for artificial additives, and the syrup served as a viable natural sugar alternative.

Nevertheless, some limitations must be acknowledged. The regression models, while effective, did not fully account for variability in dough density and sensory preferences. Furthermore, critical parameters such as water activity and shelf-life were not measured, and antioxidant capacity was only assessed in vitro. These limitations underscore the complexity of modeling food systems and the importance of further validating the findings.

Future studies should investigate the stability of the optimized cones over time, assess the bioaccessibility and bioavailability of functional compounds, and examine the product's performance in industrial-scale production. Additionally, expanding the application of carrot powder and ziziphus syrup to other food products could broaden their potential as sustainable, functional ingredients in gluten-free and health-oriented formulations.

Conclusion :

- Résumé des résultats majeurs + implications scientifiques.
- Perspectives futures (suite) du travail présenté dans l'article.

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Références bibliographiques :

- Liste bibliographique des documents utilisés (cités) dans l'article.
- Normalisation requise (ISO690, APA, Vancouver, Harvard, etc.)

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Expressions écrites et orales

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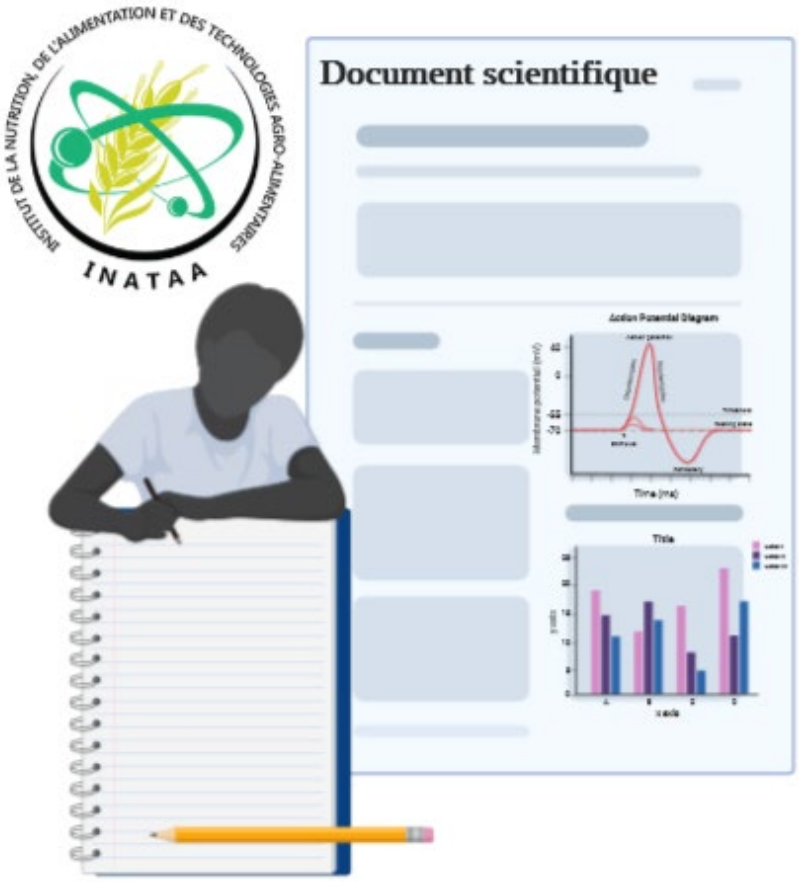
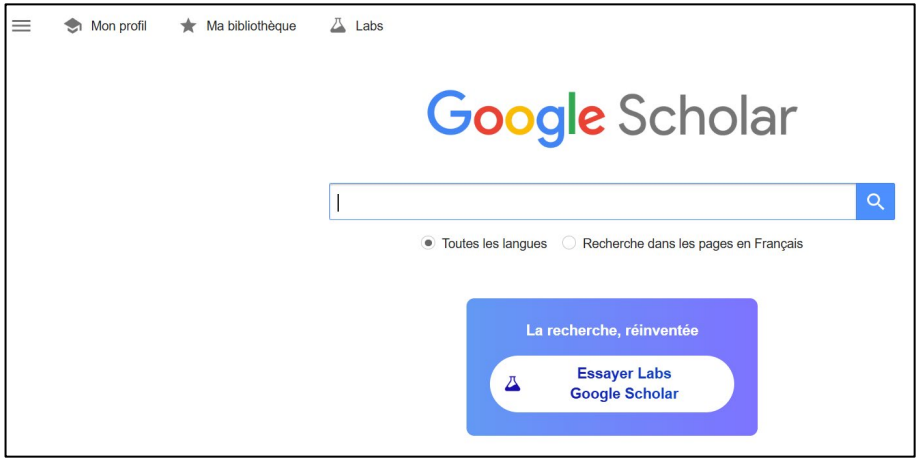
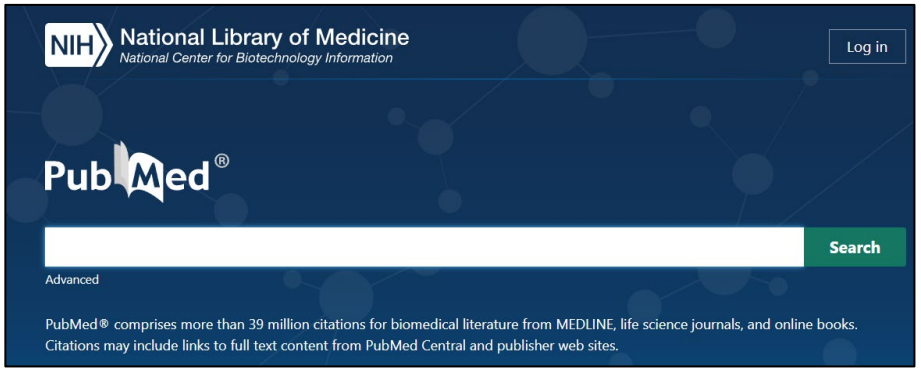


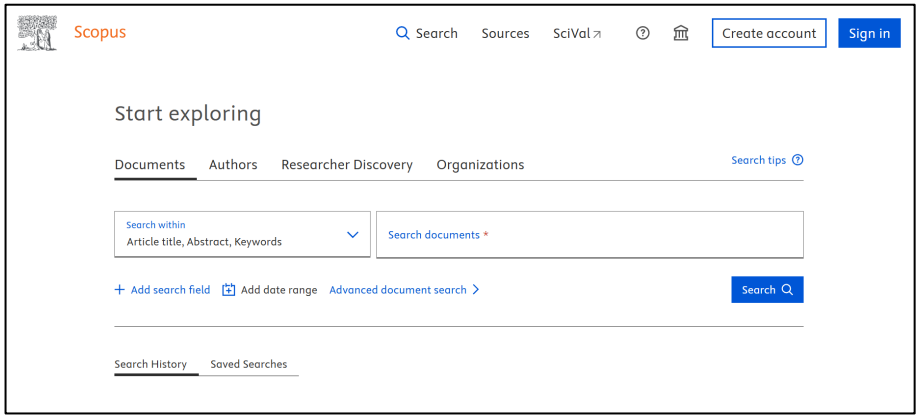
Introduction à la veille documentaire

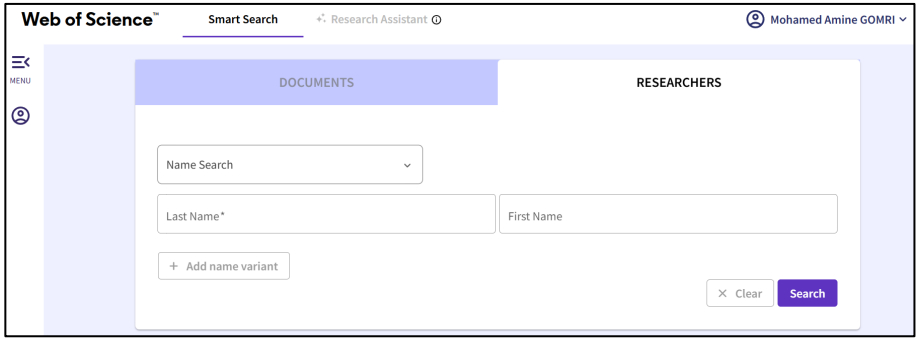
- La veille documentaire consiste à rechercher, sélectionner et analyser régulièrement des publications (articles, livres) scientifiques afin de suivre l'évolution d'un domaine.
- La veille documentaire est essentielle pour un étudiant : elle permet de **rester à jour**, **suivre les tendances**, **structurer ses travaux** (rapports, mémoires, thèses), **développer son esprit critique** et **transformer l'information en connaissances** utile pour sa réussite académique et professionnelle.

- Les outils de veille scientifique se répartissent entre **moteurs de recherche/grand index** (p. ex., Google Scholar, Scopus, Web of Science), **bases biomédicales spécialisées** (p. ex., PubMed), **plateformes de maisons d'édition scientifique** (p. ex., Springer Nature, ScienceDirect), et **réseaux scientifiques sociaux** (ResearchGate).
- Leur usage combiné offre une veille documentaire robuste, couvrant un large spectre disciplinaire et maximisant les chances de trouver des documents scientifiques pertinents.

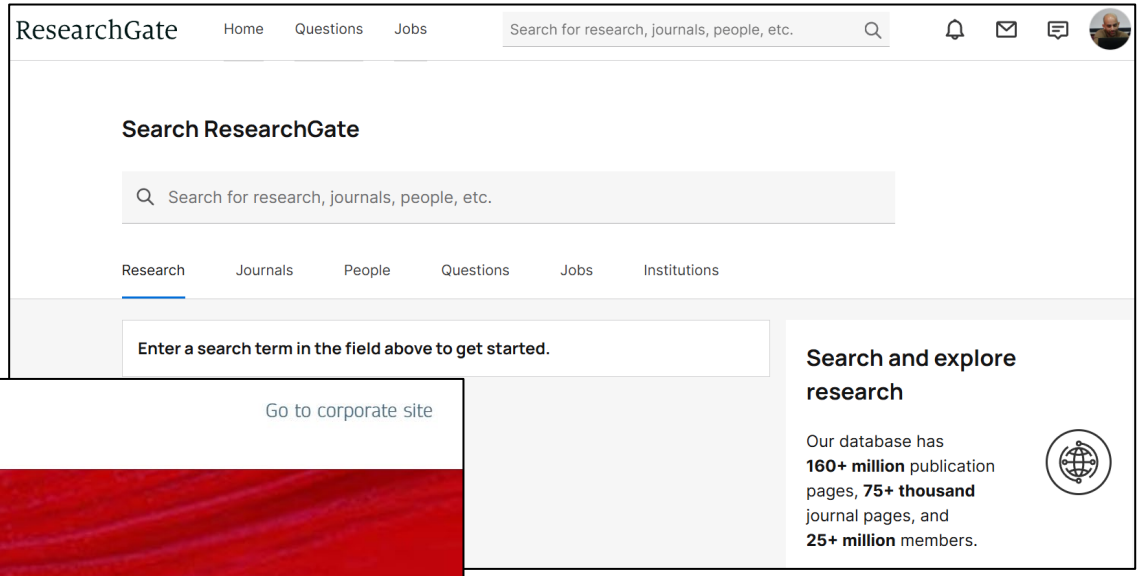


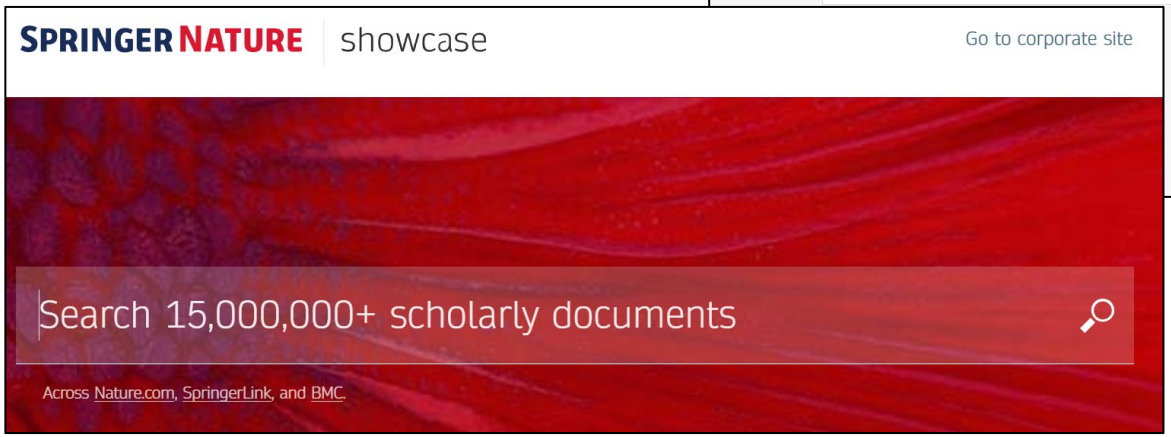


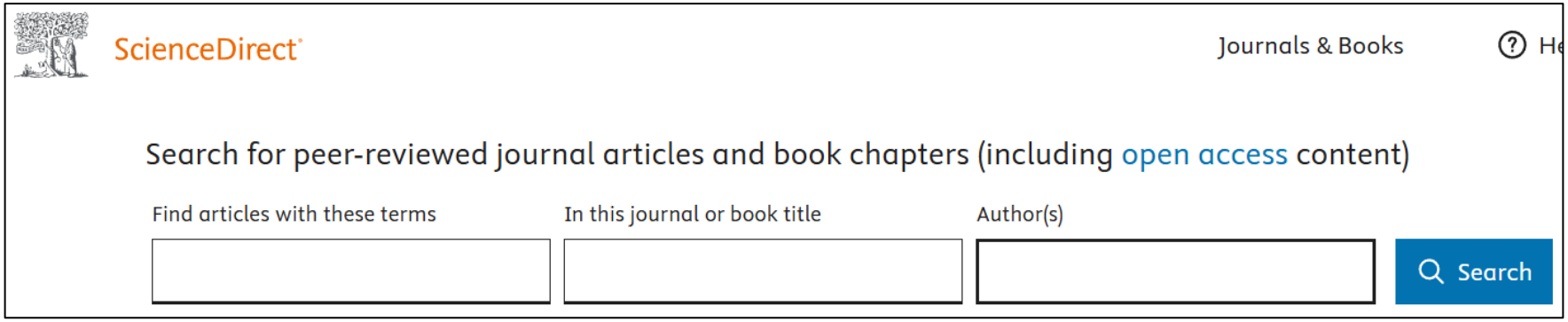




Exemple d'outils de veille scientifique







Exemple d'outils de veille scientifique

Où chercher des publications scientifiques ?

Plateforme	Lien	Domaine / Intérêt principal
Google Scholar	https://scholar.google.com/	Recherche large et gratuite de publications scientifiques (tous domaines)
PubMed	https://pubmed.ncbi.nlm.nih.gov/	Biologie & santé (microbiologie, sciences alimentaires, médecine, etc.)
Scopus (payante)	https://www.elsevier.com/solutions/scopus	Base bibliographique et citationnelle multidisciplinaire , large couverture, utile pour veille documentaire et citation analysis
Web of Science (payante)	https://www.clarivate.com/products/web-of-science/	Base bibliographique et citationnelle , index de revues évaluées, large couverture historique, suivi des citations
Sites des éditeurs : Springer Nature, Science Direct, Wiley, Taylor & Francis, etc.		Accès à des articles et revues scientifiques , nombreuses disciplines (sciences, santé, technologie, etc.)
ResearchGate	https://www.researchgate.net/	Réseau académique , accès parfois direct à des articles, contact avec auteurs, échange scientifique

Méthode de recherche efficace

1. Formuler correctement sa recherche scientifique

- Une recherche pertinente dépend de mots-clés précis, liés au sujet, à la méthode ou au type d'étude recherché.
- Exemples de mots-clés simples : *Listeria Salmonella milk dairy pasteurisation spoilage antimicrobial activity*
- Combiner plusieurs mots-clés améliore la précision

Principe général :

Plus les mots-clés sont ciblés → plus la recherche est pertinente.

Méthode de recherche efficace

Google Scholar

Listeria Salmonella milk dairy pasteurisation spoilage antimicrobial activity

Articles

Environ 10 900 résultats (**0,11** s)

Mon profil Ma bibliothèque

Date indifférente
Depuis 2025
Depuis 2024
Depuis 2021
Période spécifique...

Trier par pertinence
Trier par date

Toutes les langues
Recherche dans les pages en Français

Tous les types
Articles de revue

☐ inclure les brevets
☑ inclure les citations

Créer l'alerte

Antimicrobial activity of clove and cinnamon essential oils against **Listeria** monocytogenes in **pasteurized milk** [PDF] sciencedirect.com
R Cava, E Nowak, A Taboada, F Marin-Iniesta - Journal of food protection, 2007 - Elsevier
… the consumption of **dairy** products, such as **pasteurized milk** (1, 8, … **Antimicrobial effect** of essential oils on the seafood **spoilage** …) on **Salmonella** enteritidis and **Listeria** monocytogenes in …
☆ Enregistrer 99 Citer Cité 236 fois Autres articles Les 5 versions

Antibacterial activity of raw **milk** against **Listeria** monocytogenes
WM Pitt, TJ Harden, RR Hull - Australian Journal of **Dairy** …, 1999 - search.proquest.com
… and **spoilage** micro—organisms to grow in **milk**. … **milk** and sometimes also in **pasteurised milk**, this work was undertaken to evaluate the **antimicrobial activity** of raw and **pasteurised milk** …
☆ Enregistrer 99 Citer Cité 11 fois Autres articles Les 5 versions

Antimicrobial activity of camel's **milk** against pathogenic strains of *Escherichia coli* and ***Listeria*** *monocytogenes* [PDF] academia.edu
N Benkerroum, M Mekkaoui… - … journal of **dairy** …, 2004 - Wiley Online Library
… against Gram-negative and Gram-positive bacteria of health or **spoilage** significance has been … The **effect** of **pasteurization** on the **antimicrobial activity** of camel's **milk** against E. coli O78:…
☆ Enregistrer 99 Citer Cité 166 fois Autres articles Les 11 versions

Growth inhibition of foodborne pathogens in camel **milk**: *Staphylococcus aureus*, ***Listeria*** *monocytogenes*, ***Salmonella*** spp. and *E. coli* O157:H7
A Abusheliabi, M Ayyash - Czech Journal of Food Sciences, 2017 - search.proquest.com
… As **dairy** products, camel **milk** and its products have not … **Salmonella** spp.) was investigated

Méthode de recherche efficace

2. Opérateurs booléens (AND, OR, NOT) : outil essentiel pour filtrer les résultats

Opérateur	Fonction	Exemple d'utilisation
AND	Associe 2 termes → résultats contenant **les deux**	*Salmonella* AND lait
OR	Élargit la recherche → résultats contenant **l'un OU l'autre**	"*E. coli*" OR coliformes
NOT	Exclut un terme → filtre un aspect non souhaité	mycotoxines NOT céréales

Méthode de recherche efficace

PubMed®

(Listeria OR Salmonella) AND milk NOT butter

Search

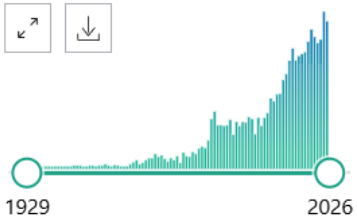
Advanced Create alert Create RSS User Guide

Save Email Send to Sort by: Best match Display options

MY CUSTOM FILTERS

4,241 results Page 1 of 425

RESULTS BY YEAR



PUBLICATION DATE

- 1 year
- 5 years
- 10 years
- Custom Range

TEXT AVAILABILITY

- Abstract
- Free full text
- Full text

ARTICLE ATTRIBUTE

- Associated data

1 Cite

The complex microbiota of raw **milk**.

Quigley L, O'Sullivan O, Stanton C, Beresford TP, Ross RP, Fitzgerald GF, Cotter PD.

FEMS Microbiol Rev. 2013 Sep;37(5):664-98. doi: 10.1111/1574-6976.12030. Epub 2013 Jul 24.

PMID: 23808865 Free article. Review.

Here, we review what is known about the microorganisms present in raw **milk**, including **milk** from cows, sheep, goats and humans. **Milk**, due to its high nutritional content, can support a rich microbiota. ...Pseudomonas, Clostridium, Bacillus and other spore-form ...

View PDF

2 Cite

Modeling of **Listeria** innocua, Escherichia coli, and **Salmonella** Enteritidis inactivation in **milk** treated by gamma irradiation.

Lima FR, de Souza Costa Sobrinho P, de Oliveira Ferreira Rocha L, Mendes de Souza P.

Braz J Microbiol. 2023 Jun;54(2):1047-1054. doi: 10.1007/s42770-023-00931-5. Epub 2023 Feb 22.

PMID: 36811770 Free PMC article.

This study aimed to investigate the effect of gamma irradiation on the lethality of microorganisms inoculated in **milk**, estimate the mathematical model of inactivation of each microorganism, and evaluate kinetic indices to determine the efficient dose in the treatment of ...

3 Cite

Prevalence of **Listeria** monocytogenes, **Salmonella** spp., Shiga toxin-producing Escherichia coli, and Campylobacter spp. in raw **milk** in the United States between 2000 and 2019: A systematic review and meta-analysis.

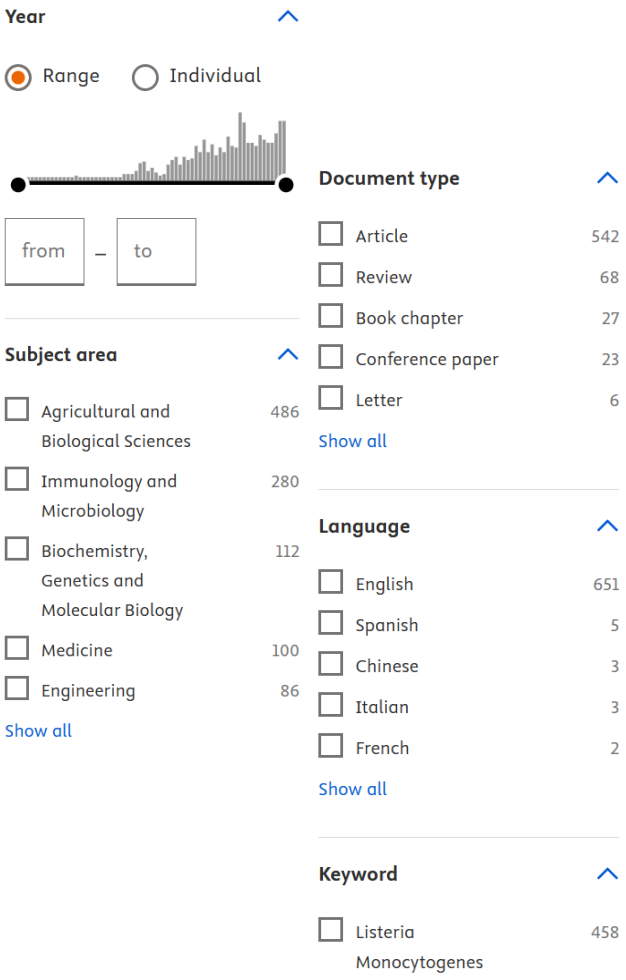
Williams EN, Van Doren JM, Leonard CL, Datta AR.

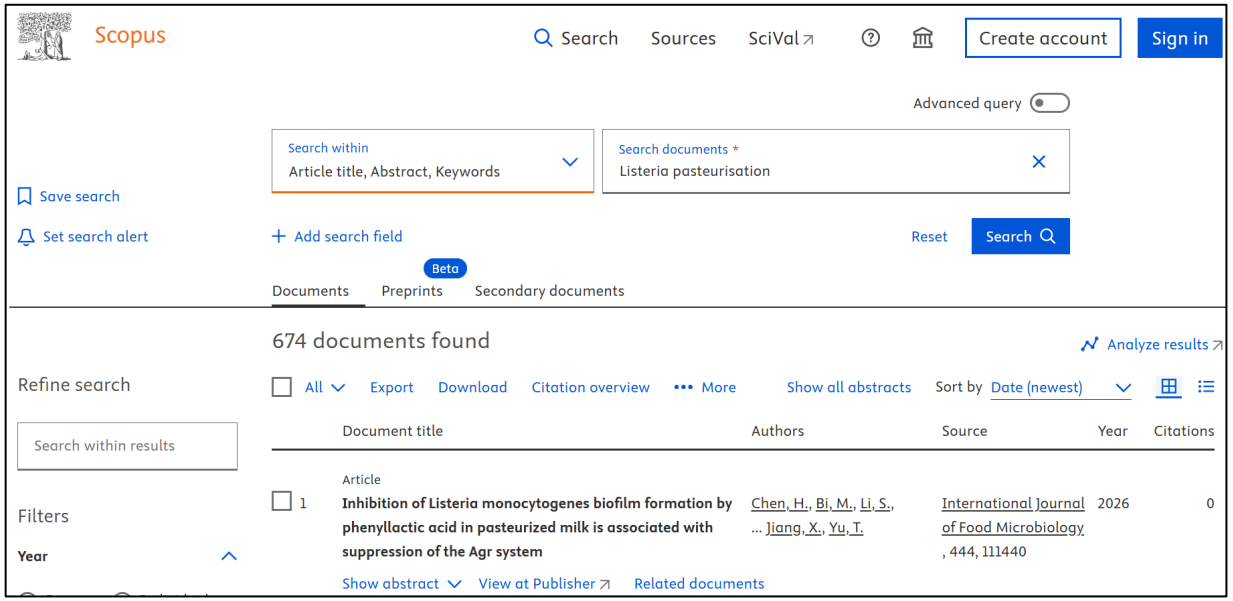
J Food Prot. 2023 Feb;86(2):100014. doi: 10.1016/j.jfp.2022.11.006. Epub 2023 Jan 11.

PMID: 36916568 Free article.

Méthode de recherche efficace

3. Utiliser les filtres disponibles sur les outils de veille documentaire.





Ces filtres permettent de limiter les résultats selon l'année, le type de document, le domaine scientifique ou la langue…afin de rendre la recherche plus pertinente et ciblée.

Activité TD7 : Recherche et analyse d'articles en Open Access (PubMed) :

Faites une recherche bibliographique sur **la fermentation alimentaire et les produits alimentaires fermentés** en suivant les étapes suivantes :

Étape 1 - Recherche documentaire

- Choisir 5 mots-clés pertinents, en anglais
- Effectuer une recherche sur PubMed (https://pubmed.ncbi.nlm.nih.gov/) (uniquement articles *open access*, filtrer par *Free full text*)

Étape 2 - Sélection et analyse des trois résumés les plus pertinents

Pour chaque article, répondre brièvement aux questions :

- Sujet de l'étude ? Objectif ?
- Méthodes utilisées ?
- Résultat principal ?
- L'article est-il pertinent ?

Étape 3 - Sélection finale

Choisir 1 seul article sur les 3. Justifier votre choix.

Activité TD7 : Recherche et analyse d'articles en Open Access (PubMed) :

Quelques exemples de mots clés

Variante	Type	Mots-clés optimisés pour PubMed
Sans opérateur	Mots-clés simples	food fermentation, fermented foods, nutritional quality, bioactive compounds, food processing
Sans opérateur	Mots-clés simples	lactic fermentation, traditional fermented foods, antioxidant capacity, functional foods, dairy fermentation
Avec opérateurs AND/OR/NOT	Booléens optimisés	(food fermentation OR fermented foods) AND nutritional value AND bioactive compounds NOT spoilage

Activité TD7 : Recherche et analyse d'articles en Open Access (PubMed) :

De la même manière, faites d'autres recherches bibliographiques en suivant les étapes suivantes sur les thèmes suivants :

- Étude des probiotiques dans les produits laitiers fermentés
- Influence des emballages intelligents sur la conservation des aliments
- Valorisation des sous-produits agroalimentaires pour l'alimentation fonctionnelle
- Impact des procédés de séchage sur les composés bioactifs des fruits
- Détection et contrôle des mycotoxines dans les céréales et les fruits secs