applied sciences

MDPI

Review

Textural Properties of Bakery Products: A Review of Instrumental and Sensory Evaluation Studies

Raquel P. F. Guiné

CERNAS-IPV Research Centre, Polytechnic Institute of Viseu, 3504-510 Viseu, Portugal; raquelguine@esav.ipv.pt

Abstract: Bakery products are an important sector of the food industry globally and are part of the regular diets of many people. Texture encompasses many product characteristics and plays a pivotal role in consumer acceptance. This review focuses on the studies that evaluate textural properties in a set of bakery products, either using instrumental texture measurements or sensorial evaluations. A search was conducted on scientific databases, and selection was based on some eligibility criteria, resulting in a total of 133 articles about the textural properties of bakery products. Of these studies, the majority reported only instrumental analysis of texture (62 out of 133), and a minor number of studies reported only sensorial analyses (n = 14). Still, there was an expressive number of studies in which both methodologies were used to assess the texture of the bakery products (n = 57), i.e., instrumental measurement complemented with sensory evaluation. The results showed that most studies focused on bread (37%) and cakes (33%). With respect to instrumental texture analysis, most tests were TPA (texture profile analysis), and the most commonly used probe was a cylinder disc with a 75 mm diameter. Instrumental tests usually determine textural properties like hardness, cohesiveness, chewiness, and springiness. Regarding the sensorial analyses of texture, mostly descriptive tests were used (72%), particularly sensory profiling, with a lower number of studies performing discriminating (18%) of preference/acceptance tests (10%). In most cases, untrained panels were used, with a most common number of panelists equal to ten, and the most representative evaluated textural attributes were hardness, cohesiveness, chewiness, and springiness. In conclusion, this review provides insight into the methods used to assess the texture of bakery products and which characteristics of these products should be on focus. Furthermore, it was verified that both types of methodologies are complementary in evaluating texture for these types of food products.

Keywords: bakery product; bread; cookie; cake; texture measurement; texture profile analysis; sensorial analysis; sensory panel

check for updates

Citation: Guiné, R.P.F. Textural Properties of Bakery Products: A Review of Instrumental and Sensory Evaluation Studies. *Appl. Sci.* **2022**, *12*, 8628. https://doi.org/10.3390/app12178628

Academic Editor: António José Madeira Nogueira

Received: 3 August 2022
Accepted: 25 August 2022
Published: 29 August 2022

1. Introduction

Bakery and pastry products are highly varied and versatile. In addition to the immense different possible recipes that can be found, it is very easy to adapt them to the available ingredients, the desired organoleptic characteristics or nutritional properties. Besides, there is a long tradition for humans to consume bakery products, with bread being one of the pivotal foods throughout history. Among these also stand cookies, which represent a very important food, not only from the nutritive point of view but also social, as being used in festivities and fraternization moments [1–3].

Nowadays, bakery products are a staple food in many countries worldwide, despite the sociocultural divergences or nutritional needs. The food industry plays an essential role in the sector of bakery products, being responsible for producing and providing consumers with infinite variety. The bakery sector is responsible for relevant economic movements within and across countries by trading products such as bread, cakes, cookies, pies, and others, either fresh or frozen. The bakery sector also constitutes a source of employability [4–6].

Because bread is cheap, satisfying and widely available, it is one of society's basic food items [7,8]. In modern days, bread has assumed an even major role in nutrition, beyond providing basic nutrients, and both the academy and industry have devoted joint efforts to provide the consumer with a wide variety of products with improved health properties, owing to the presence of bioactive compounds, like dietary fiber or antioxidants [9–11]. The supplementation of bread with health-enhancing components has been tested from a circular economy and sustainable food production systems perspective. The supplementation of bread with bioactive ingredients for health enhancement has been rising because this type of solution encompasses the advantages of lower environmental impact allied to better economic profitability and obtaining more diversified and healthier food products. Breas supplementation has been successfully tested with brewer's spent grain [12], sorghum extract [13], whey protein [14], and ginseng dietary fiber [15], as examples. These works conform to the interest in enhancing bread's nutritional quality, which can sometimes be achieved by using residues from the food industry. However, incorporating different ingredients into bread poses many technological challenges since the dough rheology can be affected by the presence of the compounds or their interaction with the wheat gluten [16]. These, in turn, can affect the textural properties of the products.

In what concerns sweet bakery products, such as cakes or cookies, they also assume a central role in human diets, either on special occasions or in everyday life, as snacks for fast consumption between meals. Cookies have special appeal to the elderly and children. Because cookies have become so frequent, attempts have been made to improve their nutritive balance by adding supplementary nutrients to ensure proper nutrition for different populations in need. Among these are proteins or functional ingredients like prebiotics [17–21].

In the case of bakery products, organoleptic characteristics are essential for consumer acceptance, and texture, in particular, is highly relevant for all types of bakery products. Texture involves several sensory characteristics and is considered a critical attribute for the quality of some products. In this way, texture determines the consumer perception and value attributed to the products [22–25]. Besides, the texture is also pivotal from the technological and economic points of view to minimize losses during production, storage or transportation. For example, it can be pointed out the case of overly harder crust in bread, leading to rejection at the production stage, or fracturability of cookies, resulting in high losses during transportation. As in other sectors, also for bakery products, improvements in baking technology, like fermentation, ultra-high-pressure treatment, pulsed electric field, Ohmic treatment, radiofrequency treatment, or packaging, such as active packaging, can be a way to improve texture and extend shelf life with maximum quality [26–28].

Texture can be analyzed through instrumental methods, sensory evaluation, or both. Instrumental methods consist of measuring the physical properties using sophisticated equipment, for example, texturometers. They are used to quantify a wide variety of textural characteristics of foods. On the other hand, sensory tests are carried out by a number of panelists/judges, with or without training, in a standard tasting room equipped with individual tasting booths separated by screens high enough and wide enough to isolate the different judges [29,30].

The textural characteristics of bakery products assume a pivotal role in the food industry and consumer acceptance, redefining the quality criteria that must be sought to have a successful relationship between the production and the consumption of bakery products. However, the assessment of the textural characteristics of these foods can impact their results. Furthermore, it is very relevant to understand how these texture evaluations produce information and at what cost. Due to the relevance of textural characteristics of bakery products, this study focused on the measurement of texture in different bakery products and the methods employed for their assessment, namely instrumental measurements and sensory evaluations. The advantages and disadvantages of each evaluation method are relevant and have different applicability depending on being an industrial production plant or product development phases. While instrumental tests provide faster and more precise results, sensory tests provide complete information better adjusted to consumer perception. For this review, a set of studies were selected from the scientific literature based on certain defined inclusion/exclusion criteria. Those studies were then analyzed based on several variables, for example, the type of product, the characteristics of the study, the instrumental measurement methods and their parameters, or the characteristics of the sensory tests performed. The results obtained are expected to show how these techniques are utilized and in what circumstances and discuss their adaptability to the bakery sector.

2. Methodology Explanation

The literature review was made between April and May 2022 in scientific databases ScienceDirect, BOn and SciELO. Articles were searched following specific inclusion criteria: only research articles about textural properties of bakery products (either measured by instrumental methods or assessed by sensory evaluations), published in 2000 or later. Exclusion criteria: reviews, old publications and articles for which no information was provided regarding the methodology used to evaluate the texture, either instrumental or sensory assessments. Entering keywords used were texture, textural, bakery, sensory, sensorial, and rheology. A specific search was also conducted in the journal of Texture Studies, looking for targeted products, namely bread, cookies, biscuits or cakes. Following these criteria, 133 articles were included in the review.

Descriptive statistics (frequencies, minimum, maximum, mode), Excel graphs (Office 2016 from Microsoft), bibliometric analysis, word clouds, and Sankey diagrams were used to treat the data. The software SankeyMATIC available online (https://sankeymatic.com/build/), was used to obtain the Sankey Diagram. Word clouds were produced with WordCloud Generator—MonkeyLearn is also available online (https://monkeylearn.com/word-cloud/). The bibliometric analysis was done using the free software VOSviewer (Developed by the Centre for Science and Technology Studies, Leiden University, Leiden, The Netherlands).

3. Results

Some variables were defined to classify the studies in this review: product studied, type of product (bread, pie, cake, biscuit/cookie, others), and crust nature (hard, soft). Regarding the instrumental measurement of texture, the variables considered were texture analysis method (TPA/compression, other compression assays, perforation, cut, others, or not specified), probe description/probe code, load cell, pre-test speed, test speed, post-test speed, trigger force, distance, number of replications) and textural properties measured. With respect to the sensorial texture analysis, the variables considered were sensory analysis method, scale interval lower and upper limits, type of panel (trained, untrained, semi-trained), number of panelists and sensory attributes assessed.

3.1. Bibliometric Analysis

Of the 133 studies included (Appendix A), most were from 2021 (27 studies), but the years 2020 and 2022 also are highly represented, with 15 studies each. There are few studies from the early years of the 21st century, with only three articles from 2000 to 2005 and 11 articles from 2006 to 2010 (Figure 1). The diversity of the sources was very high, with articles from 35 different journals, of which the most frequent are LWT—Food Science and Technology (32 articles), Journal of Texture Studies (27 articles), Journal of Cereal Science (9 articles), Food Chemistry (8 articles), Innovative Food Science & Emerging Technologies (6 articles), International Journal of Gastronomy and Food Science (6 articles) and Food Hydrocolloids (5 articles).

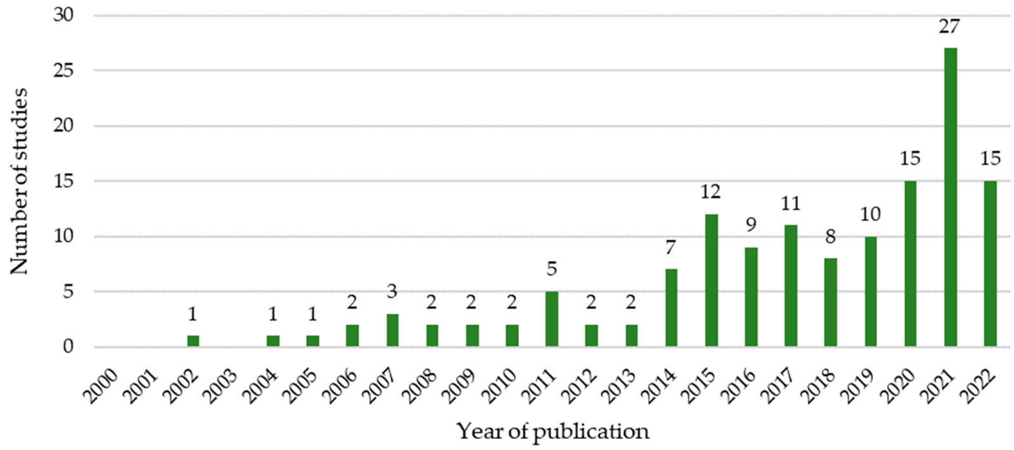

Figure 1. Number of documents according to the publication year.

The 133 bibliographic sources included in the review were analyzed using the software VOSviewer. The diagram in Figure 2 evidences the co-occurrence links between keywords in the articles that occurred at least two times. From the 432 keywords, the analysis extracted 66 keywords satisfying the criteria, from which two did not have any relation with others and therefore were excluded, resulting in a map with 64 keywords. The sizes of the circles and the corresponding labels correspond to each keyword's relative frequency of occurrence. The number of articles in which the keywords occur jointly corresponds to their relatedness, which is represented by the proximity of the circles. Figure 2 shows which keywords were more frequent: texture, bread, bakery products and rheology. The 64 keywords produced 10 clusters, with 174 links and a total link strength of 190. The most separated cluster included four keywords, the most relevant being textural properties, puncture test and compression test.

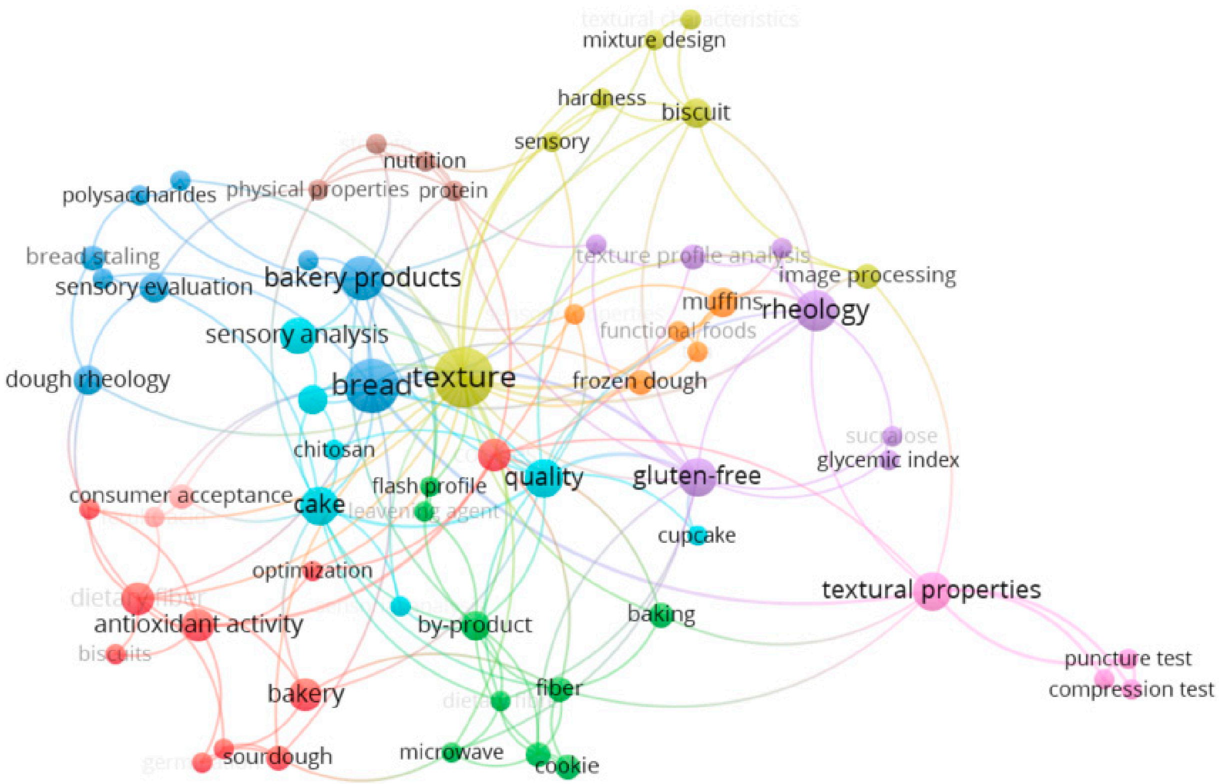

Figure 2. Analysis of co-occurrence links between keywords, considering those that occurred at least twice.

Similarly, Figure 3 presents the co-authorship links between authors in the bibliographic sources that occurred at least twice. There were 607 authors, from which 29 met the criteria of appearing at least twice. Some of the 29 authors in the network were not connected to authors in other articles, thus producing 15 clusters with 19 links and a total link strength of 36. The largest number of connected authors consisted of five, corresponding to a cluster cantered in authors Guiné R. linked with Correia P.

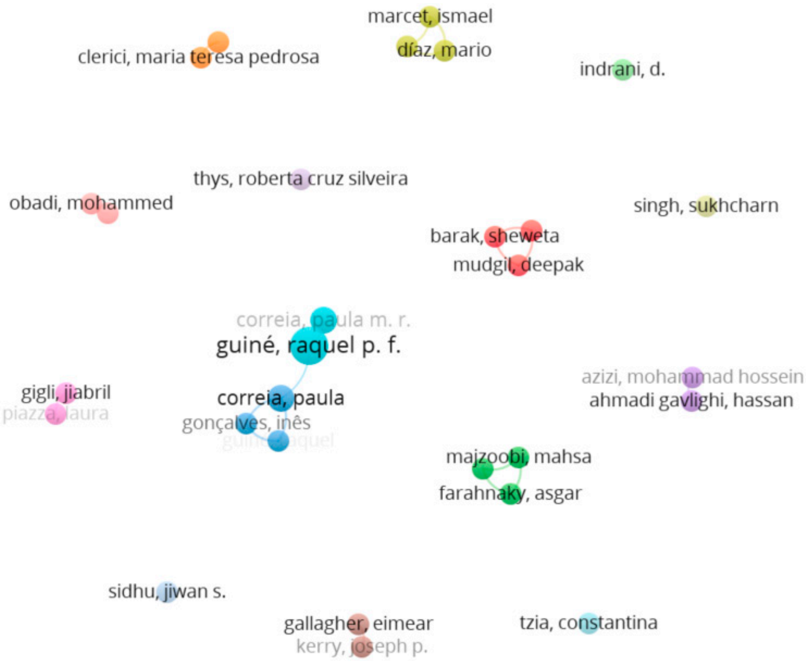

Figure 3. Analysis of co-authorship links between authors, considering those that occurred at least two times.

3.2. Characterization of the Studies

The products evaluated were varied as depicted in Figure 1 but with a prevalence of studies focusing on bread (n = 49), cakes (n = 44), cookies (n = 21) and biscuits (n = 8). Other works focused on specific cakes, for example, 18 studies about a muffin and four about sponge cakes (Figure 4). The products were characterized in terms of having or not having a harder crust when compared with the core of the product, and it was found that 57 products analyzed had a harder crust, like bread, while 87 did not, such as cookies.

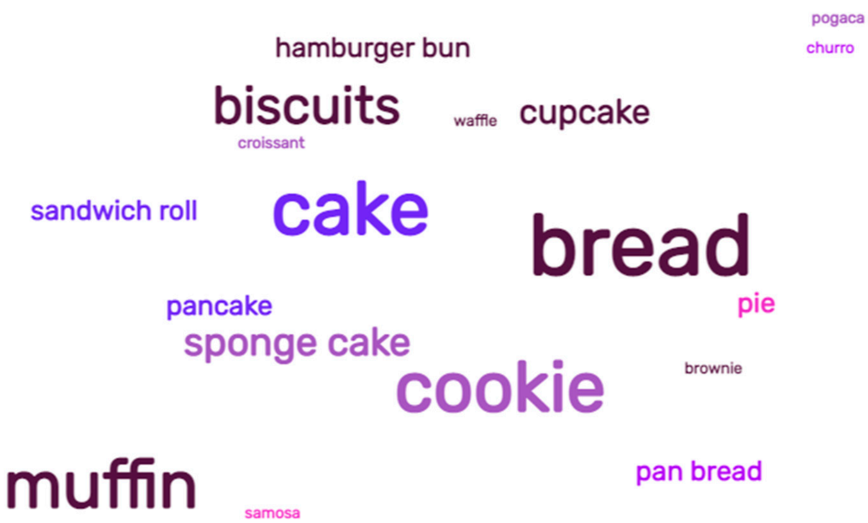

Figure 4. Word cloud for the products analyzed in the different studies.

Table 1 presents the number of studies according to journal and product type. The number of studies about bread is high (n = 49) as well as about cakes (n = 44) and biscuits/cookies (n = 29). The articles focusing on bread appear in most of the journals listed, with a particular incidence in the Journal of Cereal Science (n = 8), Journal of Texture Studies (n = 9) and LWT—Food Science and Technology (n = 8). Most studies about cakes are in these two last journals as well (n = 10 and n = 15, respectively), and the same for the studies about biscuits/cookies (n = 8 for Journal of Texture Studies and n = 9 for LWT).

Table 1. Number of studies according to journal and product type.

Journal Name	Type of Product					Total
	Bread	**Pie**	**Cake**	**Biscuit/Cookie**	**Others**	
Acta Chimica Slovaca				1		1
Annals of Agricultural Sciences	2					2
Bioactive Carbohydrates and Dietary Fibre			1			1
Brazilian Journal of Food Technology	1		2			3
Chemistry Research Journal		1				1
Chemometrics and Intelligent Laboratory Systems	1					1
Ciência Rural			1			1
Food and Bioproducts Processing				1		1
Food Bioscience	2			1		3
Food Chemistry	3		2	3		8
Food Chemistry: X			1			1
Food Hydrocolloids	1		3	1		5
Food Hydrocolloids for Health					1	1
Food Microbiology	1					1
Food Quality and Preference				1		1
Food Research International			2		1	3
Food Science and Technology—Campinas	2				1	3
Future Foods			1	1		2
Innovative Food Science & Emerging Technologies	2		3	1		6
International Journal of Biological, Biomolecular, Agricultural, Food and Biotechnological Engineering	1					1
International Journal of Gastronomy and Food Science	2		1		3	6
Journal of Cereal Science	8				1	9
Journal of Culinary Science & Technology	1			1		2
Journal of Food Engineering	1		1			2
Journal of Food Measurement and Characterization	1					1
Journal of Hygienic Engineering and Design	1					1
Journal of International Scientific Publications					1	1
Journal of Texture Studies	9		10	8		27
Journal of the Saudi Society of Agricultural Sciences				1		1
LWT—Food Science and Technology	8		15	9		32
Millenium					1	1
Revista Chilena de Nutrición	1					1
Revista Científica—Maracaibo					1	1
Revista Lasallista de Investigacion			1			1
Trends in Food Science & Technology	1					1
Total	**49**	**1**	**44**	**29**	**10**	**133**

Of the 133 articles in the review, part of these reported only instrumental measurement of textural properties (62 studies), while others focused only on sensory evaluation of textural attributes (14 studies). However, there were many studies in which both evaluation methods were used (57 studies) (Figure 5). The flow diagram in Figure 5 further shows that a high number is about bread or cake from the articles that report instrumental tests. In contrast, in the articles that report both types of evaluation for the textural properties, a high number refer to biscuit/cookie.

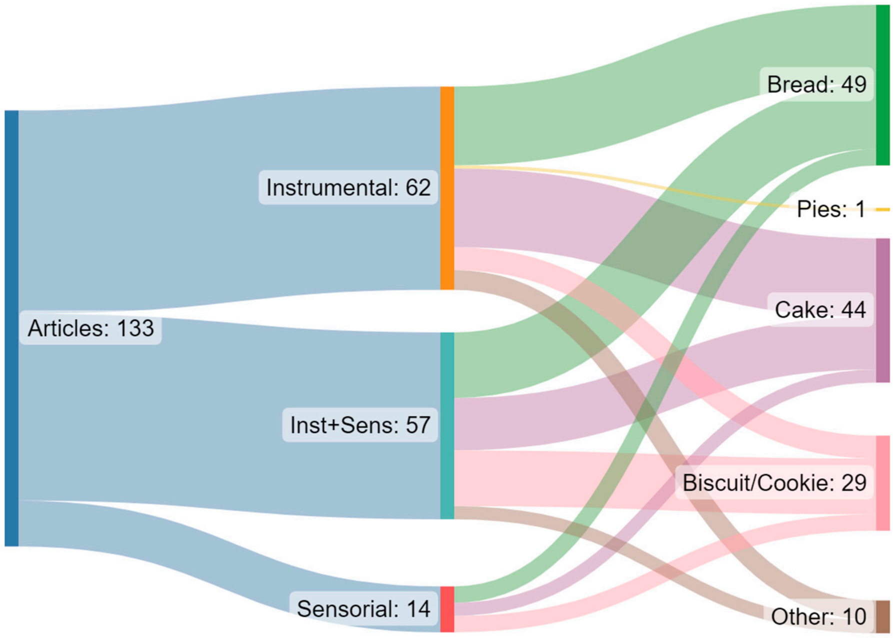

Figure 5. Sankey diagram of the studies included in the review considering the type of test and product.

3.3. Instrumental Analysis of Texture in Bakery Products

The articles included in the review evaluated the number of different textural experiments, considering that some articles described more than one type of texture measurement. Table 2 presents the number of experiments according to the type of product in which the textural measurements were performed. The great majority (n = 70) were TPA—texture profile analysis, consisting of a specific type of compression test. These were mostly used to evaluate the texture of breads (n = 26) and cakes (n = 32). The second most frequent method used for instrumental texture analysis was the group for other compression methods besides TPA (n = 35), and the products most used were breads and cakes.

Table 2. Number of studies according to the method used for the instrumental measurement of texture.

Product Type	**Type of Test**					
	TPA [1]	**Compression** [2]	**Perforation** [3]	**Cut** [4]	**Others**	**Not Specified**
Bread	26	15	5		3	
Pie	1					
Cake	32	10	1		1	3
Biscuit/Cookie	4	8	1	4	9	
Others [4]	7	2	1			
	70	**35**	**8**	**4**	**13**	**1**

[1] TPA—Texture Profile Analysis (a compression test); [2] Other compression tests besides TPA; [3] Includes perforation tests, also designated as puncture or drilling; [4] All cutting tests, regardless of the knife/probe used.

Concerning the probes used, there is great variability from the data obtained in the articles that provided such information. Even though most are cylindrical probes, they vary greatly in dimension (Table 3). Although the most frequently used probe is cylindrical with 75 mm (P/75), the sizes vary from a maximum of 110 mm to a minimum of 2 mm. With the same size, there is also the needle, differing from the cylindrical one by having the point sharp instead of flat. The three-point bending rig was also used in seven experiments.

Table 3. More common probes are used for texture measurement in bakery products.

Probe	Number of Studies
Cylinder 110 mm	1
Cylinder 100 mm	1
Cylinder 80 mm	2
Cylinder 75 mm	30
Cylinder 70 mm	1
Cylinder 60 mm	2
Cylinder 55 mm	1
Cylinder 50.8 mm	1
Cylinder 40 mm	7
Cylinder 36 mm	19
Cylinder 35 mm	4
Cylinder 30 mm	2
Cylinder 28 mm	1
Cylinder 25 mm	15
Cylinder 20 mm	6
Cylinder 12.5 mm	2
Cylinder 5 mm	1
Cylinder 3 mm	1
Cylinder 2 mm	2
Needle 2 mm	1
Drilling rig 2 mm	3
Drilling rig 12.5 mm	1
Kieffer Dough & Gluten Extensibility Rig	1
Extended craft knife	1
Guillotine type 2.0 mm probe	1
Three-Point Bending Rig	7
Others	46

Although the test parameters are not provided in a high number of articles, it was still possible to collect this type of data from a number of studies, and the results are in Table 4.

Table 4. Test parameters used in the experiments of instrumental texture analysis.

Parameter	Minimum	Maximum	Mode (Number of Studies)
Load cell (kg)	0.04	550	5 (n = 14)
Pre-test speed (mm/s)	0.5	10	1 (n = 19)
Test speed (mm/s)	0.001	60	1 (n = 47)
Post-test speed (mm/s)	0.1	10	10 (n = 17)
Trigger Force (N)	0.019	10	0.05 (n = 10)
Compression distance (mm)	1	180	10 (n = 19)
Number of replications	2	104	3 (n = 20)

The properties measured through instrumental texture analysis in bakery products include hardness, cohesiveness, chewiness, springiness, firmness and resilience, as visible from the word cloud depicted in Figure 6. Although similar, some textural properties appear with different descriptions in the articles, for example, the measurement of hardness and firmness, which are fundamentally the same. Moreover, cohesiveness and cohesion are different notations for the same textural property; the same happens for adhesiveness and adhesion.

Figure 6. Word cloud for the properties analyzed through instrumental texture analysis in bakery products.

3.4. Sensorial Analysis of Texture in Bakery Products

Of the 71 articles that report sensory analysis of bakery products, in some of them, more than one type of test is performed, as was previously observed for the instrumental measurements (number of tests = 79). The types of sensory tests used to assess the textural attributes are wide in nature, as shown in Table 5, and once again, the notations used differ from similar tests in nature. These tests were grouped into discriminating, descriptive, and affective tests (acceptance and preference). Discriminating tests (n = 14) or affective tests (n = 8) are not so frequently used as descriptive tests (n = 57). For the measurement, hedonic scales are usually preferred (as reported in 60 studies) rather than linear scales (mentioned in 5 studies) (Table 6). The scales are variable between a small number of points (five-point scale) and, in some cases, a very high number of points (one-hundred-point scale). In most cases, the scales have five (9 studies) or nine points (28 studies), the most used scales for bread, cake, biscuit/cookie or other products.

Table 5. Number of studies according to the method used for the sensorial evaluation of texture and product type.

Type of Sensorial Evaluation	Product Type					Total
	Bread	Pie	Cake	Biscuit/Cookie	Others	
Discriminating tests						
Difference between samples	2		5			7
Triangle test	3	1	2	1		7
Descriptive tests						
Sensory profiling	19		14	4	2	39
Flash profile test			1	1		2
Flash profile test (real scale 100 mm)				1		1
Descriptive analysis	2	2	1	1		6
Descriptive analysis (ISO 6658 protocol)	1					1
Quantitative descriptive analysis	2		4	2		8
Affective tests						
Acceptance test			2			2
Preference test	1		4	1		6
Total	**30**	**3**	**33**	**11**	**2**	**79**

Table 6. Characteristics of hedonic scales used in sensory analysis of bakery products.

Product Type	Number of Studies (n = 60)	Minimum	Maximum	Number of Points
Bread	1	0	5	6
Bread	5	0	10	11
Bread	1	0	14	15
Bread	3	1	5	5
Bread	3	1	8	8
Bread	6	1	9	9
Bread	1	1	100	100
Pie	1	1	5	5
Cake	3	0	5	6
Cake	1	0	10	11
Cake	2	1	5	5
Cake	1	1	7	7
Cake	12	1	9	9
Biscuit/Cookie	1	0	5	6
Biscuit/Cookie	1	0	9	10
Biscuit/Cookie	1	0	10	11
Biscuit/Cookie	3	1	5	5
Biscuit/Cookie	1	1	7	7
Biscuit/Cookie	6	1	9	9
Biscuit/Cookie	1	1	10	10
Biscuit/Cookie	2	1	15	15
Other products	4	1	9	9

In what concerns the evaluation panels, 26 were trained panels, 40 were untrained and 13 were semi-trained panels. These panels were also variable in number, from a minimum number of members of 5 to a maximum of 132; in most cases, the panels constituted 10 members (in ten studies).

Figure 7 shows the word cloud for the textural attributes assessed through sensorial analysis in bakery products. As observed before for the textural properties, the sensorial properties are also highly variable in terminology, for example, in terms like elasticity and springiness. The most frequently assessed properties include cohesiveness, hardness, chewiness and springiness.

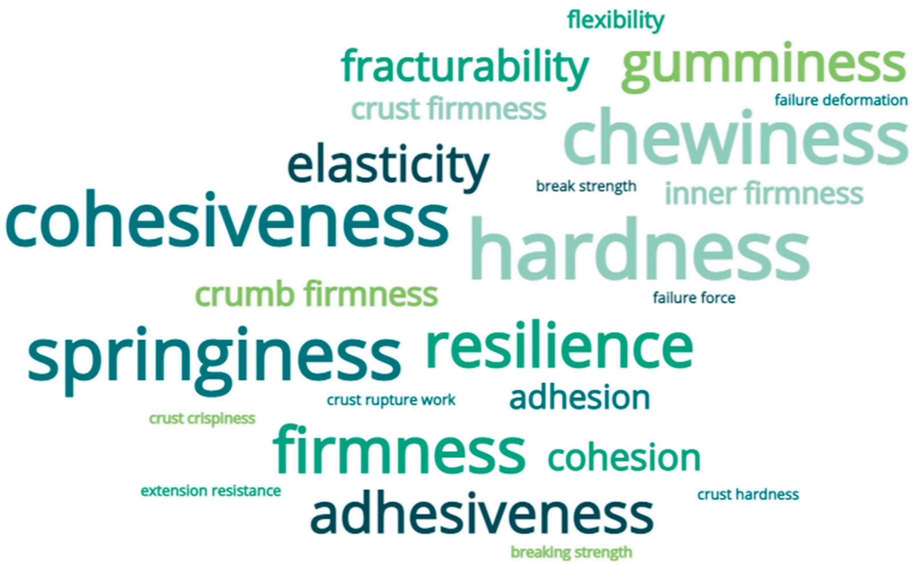

Figure 7. Word cloud for the properties analyzed through sensorial analysis in bakery products.

4. Discussion

This review showed that bread, cake and cookies were the most studied product types. These products also represent those with the highest relevance in the bakery sector globally. According to the Observatory of Economic Complexity [31], which refers to bread, pastry, cakes, biscuits and other similar products, in 2020, the world trade in the bakery sector accounted for 37.3 billion dollars, corresponding to a growth of 0.6% in relation to the previous year. The leading exporter being Germany and top importer being the United States (4.3 and 6.2 billion dollars, respectively in 2020).

Freshness perception is a key factor in consumer choice and acceptability of bakery products that interrelates with texture, among other characteristics. Loss of freshness in bakery and pastry foods causes a decrease in quality along shelf life and is related to how the texture parameters evolve over time. The organoleptic properties are related and will be influenced by the product's ingredients and the manufacturing processes utilized in their production. On the other hand, the mechanical properties of foods depend on how food ingredients are mixed and processed during manufacture and influence their texture as well as how stable that texture is [32]. According to García-Gómez et al. [33], the main sensory attributes for bread relate to the dough's resistance to deformation, the balance between elasticity and viscosity, and the rate of dough growth (raising). The consumer acceptance of bread may be related to its moisture level, which, in turn, is associated with freshness [33].

Given the commercial competition and consumer demand, the industry seeks to improve products to satisfy consumer needs and increase profit. Understanding the product's key attributes allows the industry to minimize the risk of failure when launching new products on the market [33,34]. In the food industry, measuring the textural properties of bakery and pastry products is very important, for example, in quality control and for the development of new products [33–35]. Instrumental texture analysis, particularly the TPA, represents an important breakthrough, being presently widely used by the food industry and the scientific community. TPA is an objective method; the textural attributes it estimates can correlate with the sensory textural attributes. Hence, this method is fast enough and needs easy sample preparation to be used in quality control in the processing line [36].

Most studies in this review used instrumental texture measurement, from which nearly half also included sensorial tests. A smaller number of studies focused exclusively on the sensorial assessment of texture.

The instrumental methods for texture determination can be divided into three tests: fundamental, imitative and empirical. The first measure defines rheological properties, and the second imitates the conditions to which the food is submitted in real circumstances. The last measure mechanical properties of the sample in empirical units of the instrument, therefore not being able to be extrapolated outside the test conditions and specific sample or even compared with other products. The imitative tests have the most potential and adaptability for research and industry. However, the empirical tests also have advantages for quick determinations on the production line [37]. Imitative instruments simulate the chewing process. The problem with this type of measurement is the insufficient definition of what is measured and the arbitrariness of the test, which are effective only with a limited number of foods, despite being widely used in the food industries [37–39]. The TPA is a set of measures developed based on the imitation of the compression of a bite on a piece of food, representing twice the movement of the jaws in chewing. The test is based on the sample's response to the applied force. Strain levels between 20–50% are generally applied to semi-solid products. Under these conditions, the samples do not break, making it possible to obtain valuable information on a high number of texture properties [38,39].

According to some authors, instrumental texture analysis have the disadvantage that the results do not always relate well to those acquired through the sensory analysis tests [38,39]. Nevertheless, there are also many reported cases of good agreement between instrumental and sensorial texture measurement [40–42].

Regarding the instrumental tests, the most used method reported in this review was the TPA, a particular type of compression test, followed by other compression tests, puncture, and 3-point-bending tests. Compression tests used cylinder probes with variable diameters. In instrumental texture analysis, the probe moves in a controlled manner, inputting mechanical energy into and onto the test sample, and the resulting forces generated, such as puncture, compression, shear, extrusion, snapping, etc., . . . , are directly influenced by the probe geometry [43]. The deformation produced by the probe under the load cell force allows us to objectively assess and measure the effect of imitative testing, producing a true indication of the product's physical characteristics. Instrumental texture analysis uses several established procedures and techniques to manipulate the forces imposed and developed within the sample being evaluated. There are several international standard methods defined by organizations such as the ASTM (American Society for Testing and Materials), AOAC (Association of Official Agricultural Chemists), BS (British Standard), ISO (International Organization for Standardization) and DIN (German Institute for Standardization) and relate to specific geometries of test probes, sample preparation and test conditions [43].

With respect to the sensorial tests, the most frequently used was the sensory profile, a descriptive type of test, but also discriminating tests, testing differences, and affective tests were used. In the latter group, it was mostly preference tests.

Sensory analysis is pivotal to assessing product quality and consumer acceptability [33–35]. Color, visual appearance, flavor, taste and texture have the greatest initial impact on consumers. However, the taste and texture determine the consumer's final decision to buy the product again or not. Several aspects can be evaluated when performing sensory analysis, such as organoleptic characteristics, quality perception and consumer acceptance. These can be assessed through different types of sensory tests [33,35,44]. Discriminating sensory tests include two groups, difference tests, such as triangular tests or simple paired differences among others [45], and attribute differences, in which specific product features are rated as to their intensity [46]. Descriptive sensory methods allow the detection, description and quantification of sensory attributes present in a food. The food industry uses these methods in developing new products, quality control, changes in ingredients and/or formulations, and evaluating products during storage. However, most existing descriptive techniques require trained evaluators and employ unstructured scales to evaluate products [47,48]. Quantitative descriptive analysis is the most used sensory description technique in the food area, as it allows the survey, description and quantification of detectable sensory attributes in the product, using highly trained evaluators and robust statistical analysis of the data [49]. In this test, the judge can be asked to classify the product's characteristics on structured hedonic scales typically composed of an odd number of points (five, seven or nine) [50]. The affective tests, which include acceptance or preference, are performed using scales that can be sort-preference or pairwise comparison [45].

The evaluation panels in the studies of this review were mostly untrained, 51%, with 16% of semi-trained panels and 33% of trained panels. Although trained panels are more reliable, they are expensive and take a long time to train [45]. Additionally, the panels ought to be validated, a procedure that is regulated by the ISO 11132 standard, and their members' performance checked [51]. The panel should be frequently monitored with regard to its performance (agreement, discriminative ability, repeatability) and reproducibility, individually or of the group as a whole, during training to achieve more accurate and, therefore, more reliable and consistent results [47].

The most evaluated properties in both types of texture analysis were hardness (or firmness), cohesiveness (or cohesion), springiness (or elasticity) and chewiness. These properties have different representations, whether they refer to mechanical or sensorial meaning. In mechanical terms, hardness is the value of force in the peak of the first compression of the product and does not necessarily occur at the point of deepest compression. However, it typically does for most products. On the other hand, based on the test's imitative nature, hardness represents the force required to deform the product to a given distance, i.e., the force to compress it between molars, bite through with incisors or compress between tongue and palate. Regarding cohesiveness, in mechanical terms, it is how well the product withstands a second deformation relative to how it behaved under the first deformation, being measured as the area of work during the second compression divided by the area of work during the first compression. This property represents the degree to which the sample deforms before rupturing when biting with molars. Springiness is how well a product physically springs back after it has been deformed during the first compression. It is measured in several ways, but most typically, by the distance of the detected height of the product on the second compression divided by the original compression distance. This textural property represents the resilience rate at which the sample returns to the original shape after deformation. The chewiness is calculated as hardness*springiness*cohesiveness and represents the effort needed to masticate the food to a consistency suitable for swallowing [52–54].

This review highlights that the two types of methods (instrumental and sensorial) complement each other in the analysis of textural parameters of bakery products. The instrumental texture analyzers allow obtaining precise values and an objective texture profile of the products, generating data that can be used widely and subjected to easier interpretation and comparison. On the other hand, the sensory analysis methods are particularly suitable for the appreciation and preference of products regarding their textural features. Because these tests are carried out through a panel of judges, the results obtained reflect a human and sensitive side, eventually more subjective, particularly if the tests are used in untrained panels. The relevance of sensory analysis in the bakery products sector is mainly related to the product's quality and its acceptability from the consumer's point of view. Joint sensory analysis with trained tasters and consumers constitutes effective tools to determine the key product attributes for consumer acceptance [55].

By doing this review, it was possible to confirm that both the instrumental and sensorial texture analyses are of high relevance for the sector of bakery products. Each one has advantages and limitations. By performing both types of analyses, it is possible to obtain more reliable and complete descriptions of the textural profiles of the products, given that the tests provide complementing information.

5. Conclusions

This work allowed us to conclude that breads, cakes and cookies are among the most relevant bakery products in the food industry, given the number of research studies focused on these products, according to the analyzed database.

The studies used instrumental measurement of texture in most cases, a combination of instrumental with sensorial evaluations in many cases, and many articles used only sensorial assessment of texture.

Regarding the type of instrumental test, compression tests were mostly used, and in particular, the texture profile analysis (TPA). Textural parameters most analyzed in the various studies included hardness, cohesiveness, chewiness and springiness.

Regarding the sensory tests, it was concluded that most tests were descriptive and performed by untrained panels with a highly variable number of judges. The textural attributes most frequently evaluated included hardness, cohesiveness, springiness and chewiness, much like the instrumental measurements.

This review provides insight into the methods used to assess bakery products' texture and which characteristics should be focused on when developing new products or improving those already on the market, meeting the highest level of satisfaction and consumer acceptance.

Funding: This research was funded by the FCT—Foundation for Science and Technology (Portugal) through project Ref. UIDB/00681/2020.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: This work was supported by the FCT—Foundation for Science and Technology, I.P. Furthermore, we would like to thank the CERNAS Research Centre and the Polytechnic Institute of Viseu for their support. The authors thank the students from the Food Rheology Syllabus in the Food Engineering Course at ESAV-IPV—class of 2021/22.

Conflicts of Interest: The author declares no conflict of interest.

Appendix A

Table A1 shows the 133 articles included in this review.

Table A1. Studies about the textural properties of bakery products in the review.

Reference	Authorship	Title	Year
[22]	Abdullah et al.	Effect of psyllium husk addition on the instrumental texture and consumer acceptability of high-fiber wheat pan bread and buns	2021
[56]	Acosta-Estrada et al.	Improvement of dietary fiber, ferulic acid and calcium contents in pan bread enriched with nejayote food additive from white maize (*Zea mays*)	2014
[57]	Aldughpassi et al.	Effect of psyllium fiber addition on the quality of Arabic flatbread (Pita) produced in a commercial bakery	2021
[58]	Alvarez et al.	End-product quality characteristics and consumer response of chickpea flour-based gluten-free muffins containing corn starch and egg white	2017
[59]	Amani et al.	Nondestructive evaluation of baking parameters on pogácsa texture	2021
[60]	Ammar et al.	Effect of the addition of alhydwan seed flour on the dough rheology, bread quality, texture profile and microstructure of wheat bread	2016
[61]	Baixauli et al.	Influence of the dosing process on the rheological and microstructural properties of a bakery product	2007
[62]	Başar & Karaoğlu	The effects of *Cephalaria syriaca* flour on physical, rheological and textural properties of sunn pest (*Eurygaster integriceps*) damaged wheat dough and bread	2021
[63]	Berta et al.	Effect of zein protein and hydroxypropyl methylcellulose on the texture of model gluten-free bread	2019
[64]	Bockstaele et al.	Impact of temporary frozen storage on the safety and quality of four typical Belgian bakery products	2021
[65]	Bolger et al.	Effect of d-allulose, in comparison to sucrose and d-fructose, on the physical properties of cupcakes	2021
[66]	Bora et al.	Effect of incorporation of goji berry by-product on biochemical, physical and sensory properties of selected bakery products	2019
[67]	Bouazizi et al.	Effects of prickly pear (*Opuntia ficus-indica* L.) peel flour as an innovative ingredient in biscuits formulation	2020
[68]	Bressiani et al.	Properties of whole grain wheat flour and performance in bakery products as a function of particle size	2017
[69]	Castelló et al.	How isomaltulose and oligofructose affect the physicochemical and sensory properties of muffins?	2021
[70]	Chin et al.	Glazing effects on bread crust and crumb staling during storage	2011
[71]	Correia et al.	Development and characterization of wheat bread with lupin flour	2015

Table A1. *Cont.*

Reference	Authorship	Title	Year
[52]	Correia et al.	Analysis of textural properties of gluten free breads	2021
[72]	Costa et al.	Whole chickpea flour as an ingredient for improving the nutritional quality of sandwich bread: Effects on sensory acceptance, texture profile, and technological properties	2020
[73]	Cruz-Vazquez et al.	Effect of baking powder as a substitute of pork lard on the texture of Mexican tamales	2021
[23]	Delicato et al.	Consumers' perception of bakery products with insect fat as partial butter replacement	2020
[74]	Diez-Sánchez et al.	Changing chemical leavening to improve the structural, textural and sensory properties of functional cakes with blackcurrant pomace	2020
[75]	Duan et al.	Establishment of fracturability standard reference scale by instrumental and sensory analysis of Chinese food	2014
[76]	Dudu et al.	Bread-making potential of heat-moisture treated cassava flour-additive complexes	2020
[77]	Ekin et al.	A novel nanotechnological strategy for obtaining fat-reduced cookies in bakery industry: Revealing of sensory, physical properties, and fatty acid profile of cookies prepared with oil-based nanoemulsions	2021
[78]	Elkhalifa & El-Tinay	Effect of cysteine on bakery products from wheat–sorghum blends	2002
[79]	Ellouze-Ghorbel et al.	Development of fiber-enriched biscuits formula by a mixture design	2010
[80]	Erdem & Kaya	Production and application of freeze dried biocomposite coating powders from sunflower oil and soy protein or whey protein isolates	2021
[81]	Esteller et al.	Sugar effect on bakery products	2004
[82]	Esteller et al.	Effect of freeze-dried gluten addition on texture of hamburger buns	2005
[83]	Felisberto et al.	Use of chia (*Salvia hispanica* L.) mucilage gel to reduce fat in pound cakes	2015
[84]	Fernández-Michel et al.	Physicochemical and microbiological characteristics and sensory analysis of chocolate cakes added with porcine serum proteins	2006
[85]	Ferreira et al.	Physical, chemical, sensory and mineral characterization of salty muffins enriched with *Tetragonia tetragonoides*	2021
[86]	Filipčev et al.	Effect of liquid (native) and dry molasses originating from sugar beet on physical and textural properties of gluten-free biscuit and biscuit dough	2015
[87]	Fu et al.	Effects of Laminaria japonica polysaccharides on the texture, retrogradation, and structure performances in frozen dough bread	2021
[88]	Gámbaro et al.	Influence of enzymes on the texture of brown pan bread	2006
[89]	Gharaie et al.	Probiotic edible films as a new strategy for developing functional bakery products: The case of pan bread	2019
[90]	Giannou & Tzia	Frozen dough bread: Quality and textural behavior during prolonged storage—Prediction of final product characteristics	2007
[91]	Gomes	Development of muffins with green pea flour and their physical and sensory evaluation and essential amino acid content	2022
[92]	Gostin	Effects of substituting refined wheat flour with wholemeal and quinoa flour on the technological and sensory characteristics of salt-reduced breads	2019
[93]	Goswami et al.	Barnyard millet based muffins: Physical, textural and sensory properties	2015
[94]	Grillo et al.	Use of image analysis to evaluate the shelf life of bakery products	2014

Table A1. *Cont.*

Reference	Authorship	Title	Year
[54]	Guiné	Evaluation of colour and texture of a Portuguese traditional sweet: "egg chestnut"	2016
[53]	Guiné	Samosas with shiitake mushroom byproducts: Chemical and physical characterization	2019
[95]	Guiné et al.	Development of products with shiitake mushroom: Chemical, physical and sensory characterization	2019
[96]	Guiné et al.	Whey-bread, an improved food product: evaluation of textural characteristics	2020
[97]	Guiné et al.	Textural properties of newly developed cookies incorporating whey residue	2020
[98]	Gupta et al.	Effect of barley flour and freeze–thaw cycles on textural nutritional and functional properties of cookies	2011
[99]	Gutiérrez et al.	New antimicrobial active package for bakery products	2009
[100]	Jan et al.	Optimization of antioxidant activity, textural and sensory characteristics of gluten-free cookies made from whole indian quinoa flour	2018
[101]	Jan et al.	Physico-chemical, textural, sensory and antioxidant characteristics of gluten—Free cookies made from raw and germinated Chenopodium (*Chenopodium album*) flour	2016
[102]	Ji et al.	Effects of different additives on rice cake texture and cake staling	2010
[103]	Kaur et al.	Effect of addition of flaxseed flour on phytochemical, physicochemical, nutritional, and textural properties of cookies	2019
[104]	Kavitake et al.	Galactan exopolysaccharide based flavour emulsions and their application in improving the texture and sensorial properties of muffin	2020
[105]	Khiabani et al.	Preparation and characterization of carnauba wax/adipic acid oleogel: A new reinforced oleogel for application in cake and beef burger	2020
[106]	Kim et al.	Fundamental fracture properties associated with sensory hardness of brittle solid foods	2012
[107]	Kim & Shin	Effects of particle size distributions of rice flour on the quality of gluten-free rice cupcakes	2014
[14]	Komeroski et al.	Effect of whey protein and mixed flours on the quality parameters of gluten-free breads	2021
[108]	Kouhsari et al.	Effect of the various fats on the structural characteristics of the hard dough biscuit	2022
[109]	Kowalski et al.	Wheat bread supplementation with various edible insect flours. Influence of chemical composition on nutritional and technological aspects	2022
[110]	Kurek et al.	Influence of the wheat flour extraction degree in the quality of bread made with high proportions of β-glucan	2015
[111]	Lau et al.	Sweet corn cob as a functional ingredient in bakery products	2022
[112]	Lebesi & Tzia	Use of endoxylanase treated cereal brans for development of dietary fiber enriched cakes	2012
[113]	Li et al.	Roles of gelator type and gelation technology on texture and sensory properties of cookies prepared with oleogels	2021
[114]	Liang et al.	Antioxidant, flavor profile and quality of wheat dough bread incorporated with kiwifruit fermented by β-glucosidase producing lactic acid bacteria strains	2022
[19]	Liu et al.	Consumer perception and sensory properties of bakery products fortified with chicken protein for older adults	2022

Table A1. *Cont.*

Reference	Authorship	Title	Year
[115]	Machado & Thys	Cricket powder (Gryllus assimilis) as a new alternative protein source for gluten-free breads	2019
[116]	Majzoobi et al.	Effects of carrot pomace powder and a mixture of pectin and xanthan on the quality of gluten-free batter and cakes	2017
[117]	Majzoobi et al.	Feasibility study of sucrose and fat replacement using inulin and rebaudioside A in cake formulations	2018
[118]	Marcet et al.	Egg yolk granules as low-cholesterol replacer of whole egg yolk in the preparation of gluten-free muffins	2015
[119]	Marcet et al.	Rheological and textural properties in a bakery product as a function of the proportions of the egg yolk fractions: Discussion and modelling	2016
[120]	Marchetti et al.	Partial replacement of wheat flour by pecan nut expeller meal on bakery products. Effect on muffins quality	2018
[121]	Marques et al.	Whey protein as a substitute for wheat in the development of no added sugar cookies	2016
[122]	Martinez-Saez et al.	Use of spent coffee grounds as food ingredient in bakery products	2017
[123]	Mattice & Marangoni	Matrix effects on the crystallization behaviour of butter and roll-in shortening in laminated bakery products	2017
[124]	Meziani et al.	Effect of freezing treatments and yeast amount on sensory and physical properties of sweet bakery products	2012
[125]	Mieszkowska & Marzec	Structure analysis of short-dough biscuits and its correlation with sensory discriminants	2015
[126]	Milner et al.	Physical, textural and sensory characteristics of reduced sucrose cakes, incorporated with clean-label sugar-replacing alternative ingredients	2020
[127]	Mirab et al.	Production of low glycemic potential sponge cake by pomegranate peel extract (PPE) as natural enriched polyphenol extract: Textural, color and consumer acceptability	2020
[128]	Mudgil et al.	Optimization of bread firmness, specific loaf volume and sensory acceptability of bread with soluble fiber and different water levels	2016
[129]	Mudgil et al.	Cookie texture, spread ratio and sensory acceptability of cookies as a function of soluble dietary fiber, baking time and different water levels	2017
[130]	Naseer et al.	Effect of carboxymethyl cellulose and baking conditions on in-vitro starch digestibility and physico-textural characteristics of low glycemic index gluten-free rice cookies	2021
[131]	Ngemakwe et al.	Effects of carboxymethylcellulose, yoghurt and transglutaminase on textural properties of oat bread	2015
[132]	Nieto-Mazzocco et al.	Optimization of gluten-free muffin formulation with agavin-type fructans as fat and sucrose replacer using response surface methodology	2022
[133]	Nikolić et al.	Possibility of the production of functional low-fat food spread of hull-less pumpkin seed flour from rheological and textural aspect	2014
[134]	Obadi et al.	Shelf life characteristics of bread produced from ozonated wheat flour	2018
[135]	Ochoa et al.	Effect of fumaric acid on the quality characteristics of muffins	2017
[136]	Ouiddir et al.	Selection of Algerian lactic acid bacteria for use as antifungal bioprotective cultures and application in dairy and bakery products	2019
[137]	Paciulli et al.	Inulin-based emulsion filled gel as fat replacer in shortbread cookies: Effects during storage	2020
[138]	Paraskevopoulou et al.	Water extraction residue from maize milling by-product as a potential functional ingredient for the enrichment with fibre of cakes	2020

Table A1. *Cont.*

Reference	Authorship	Title	Year
[139]	Passos et al.	Instant coffee as a source of antioxidant-rich and sugar-free coloured compounds for use in bakery: Application in biscuits	2017
[140]	Paz et al.	Technological characteristics of bread prepared with defatted rice bran	2015
[3]	Pereira et al.	Analysis of the physical-chemical and sensorial properties of Maria type cookies	2013
[141]	Perri et al.	Sourdough fermentation of whole and sprouted lentil flours: In situ formation of dextran and effects on the nutritional, texture and sensory characteristics of white bread	2021
[142]	Piazza et al.	On the application of chemometrics for the study of acoustic-mechanical properties of crispy bakery products	2007
[143]	Piazza et al.	Study of structure and flavour release relationships in low moisture bakery products by means of the acoustic–mechanical combined technique and the electronic nose	2008
[144]	Pu et al.	Characterization of the dynamic texture perception and the impact factors on the bolus texture changes during oral processing	2021
[145]	Puchol-Miquel et al.	Effect of the type and degree of alkalization of cocoa powder on the physico-chemical and sensory properties of sponge cakes	2021
[146]	Radočaj et al.	Optimizing the texture attributes of a fat-based spread using instrumental measurements	2011
[147]	Rakmai at al.	Development of gluten-free and low glycemic index rice pancake: Impact of dietary fiber and low-calorie sweeteners on texture profile, sensory properties, and glycemic index	2021
[148]	Ran et al.	A mixed culture of *Propionibacterium freudenreichii* and *Lactiplantibacillus plantarum* as antifungal biopreservatives in bakery product	2022
[149]	Rashidi et al.	Frozen baguette bread dough II. Textural and sensory characteristics of baked product	2016
[150]	Richardson et al.	The impact of sugar particle size manipulation on the physical and sensory properties of chocolate brownies	2018
[151]	Rios et al.	Use of succinyl chitosan as fat replacer on cake formulations	2018
[152]	Rodrigues et al.	Physical, chemical and sensorial properties of healthy and mixture breads in Portugal	2014
[153]	Roth et al.	Changes in aroma composition and sensory properties provided by distiller's grains addition to bakery products	2016
[154]	Różyło et al.	Texture and sensory evaluation of composite wheat-oat bread prepared with novel two-phase method using oat yeast-fermented leaven	2014
[155]	Salehi et al.	Potential of sponge cake making using infrared–hot air dried carrot	2016
[156]	Samray et al.	Bread crumbs extrudates: A new approach for reducing bread waste	2019
[157]	Sarabhai et al.	Role of enzymes for improvement in gluten-free foxtail millet bread: It's effect on quality, textural, rheological and pasting properties	2021
[158]	Saraç et al.	Influence of using scarlet runner bean flour on the production and physicochemical, textural, and sensorial properties of vegan cakes: WASPAS-SWARA techniques	2022
[159]	Šarić et al.	Fiber concentrates from raspberry and blueberry pomace in gluten-free cookie formulation: Effect on dough rheology and cookie baking properties	2019
[160]	Savitha et al.	Effect of replacement of sugar with sucralose and maltodextrin on rheological characteristics of wheat flour dough and quality of soft dough biscuits	2008
[161]	Scarton et al.	Muffin with pumpkin flour: technological, sensory and nutritional quality	2021

Table A1. *Cont.*

Reference	Authorship	Title	Year
[162]	Scheuer et al.	Relationship between instrumental and sensory texture profile of bread loaves made with whole-wheat flour and fat replacer	2016
[163]	Schmelter et al.	Gluten-free bakery products: Cookies made from different *Vicia faba* bean varieties	2021
[164]	Serin & Sayar	The effect of the replacement of fat with carbohydrate-based fat replacers on the dough properties and quality of the baked pogaca: a traditional high-fat bakery product	2017
[165]	Silva et al.	Preparation and characterization of churro dough with malt bagasse flour	2022
[166]	Soukoulis et al.	Probiotic edible films as a new strategy for developing functional bakery products: The case of pan bread	2014
[167]	Sowbhagya et al.	Physicochemical and microstructural characteristics of celery seed spent residue and influence of its addition on quality of biscuits	2011
[168]	Takei et al.	Effects of rheological properties of rice dough during manufacture of rice cracker on the quality of the end product	2019
[169]	Talens et al.	Effect of a new microwave-dried orange fibre ingredient vs. A commercial citrus fibre on texture and sensory properties of gluten-free muffins	2017
[170]	Tavakoli et al.	The effect of Arabic gum on frozen dough properties and the sensory assessments of the bread produced	2017
[171]	Tinzl-Malang et al.	Purified exopolysaccharides from Weissella confusa 11GU-1 and Propionibacterium freudenreichii JS15 act synergistically on bread structure to prevent staling	2020
[172]	Varghese & Srivastav	Formulation and sensory characterization of low-cost, high-energy, nutritious cookies for undernourished adolescents: An approach using linear programming and fuzzy logic	2022
[173]	Wang et al.	Chitosan inhibits advanced glycation end products formation in chemical models and bakery food	2022
[174]	Xu et al.	Physicochemical properties of muffins prepared with lutein & zeaxanthin-enriched egg yolk powder	2022
[175]	Yang et al.	Construction of egg white protein particle and rhamnolipid based emulsion gels with β-sitosterol as gelation factor: The application in cookie	2022
[176]	Yüceer & Caner	Effects of protease-hydrolyzed egg white on the meringue batter properties and meringue textural and sensory properties during storage	2021
[177]	Zadeike et al.	Comparative study of ciabatta crust crispness through acoustic and mechanical methods: Effects of wheat malt and protease on dough rheology and crust crispness retention during storage	2018
[178]	Zareifard et al.	Bakery product characteristics as influenced by convection heat flux	2009
[179]	Zhou et al.	Effects of sourdough addition on the textural and physiochemical attributes of microwaved steamed-cake	2021
[180]	Zorzi et al.	Sunflower protein concentrate: A possible and beneficial ingredient for gluten-free bread	2020

References

1. Ashton, J. *The History of Bread—From Pre-Historic to Modern Times*; Brooke House Publishing Co.: London, UK, 2010.
2. Overstreet, K. White Bread: A Social History of the Store-Bought Loaf. *J. Hist. Geogr.* **2013**, *42*, 217–218. [CrossRef]
3. Pereira, D.; Correia, P.M.R.; Guiné, R.P.F. Analysis of the Physical-Chemical and Sensorial Properties of Maria Type Cookies. *Acta Chim. Slovaca* **2013**, *6*, 269–280. [CrossRef]
4. Bock, J.E.; Wrigley, C.W.; Walker, C.E. Bakeries: The Source of Our Unique Wheat-Based Food, Bread. In *Encyclopedia of Food Grains*, 2nd ed.; Wrigley, C., Corke, H., Seetharaman, K., Faubion, J., Eds.; Academic Press: Oxford, UK, 2016; pp. 335–342. ISBN 978-0-12-394786-4.

5. Morais, D.; Gaspar, P.D.; Silva, P.D.; Santos, F.C.; Andrade, L.P.; Nunes, J. Assessment of the Energy Consumption and Technologies in the Bakery and Pastry Sector—The Portuguese Case Study. *Energy Procedia* **2019**, *161*, 83–92. [CrossRef]
6. Van Der Spiegel, M.; Luning, P.A.; De Boer, W.J.; Ziggers, G.W.; Jongen, W.M.F. How to Improve Food Quality Management in the Bakery Sector. *NJAS Wagening. J. Life Sci.* **2005**, *53*, 131–150. [CrossRef]
7. Basaran, B.; Anlar, P.; Yılmaz Oral, Z.F.; Polat, Z.; Kaban, G. Risk Assessment of Acrylamide and 5-Hydroxymethyl-2-Furfural (5-HMF) Exposure from Bread Consumption: Turkey. *J. Food Compos. Anal.* **2022**, *107*, 104409. [CrossRef]
8. Ilktac, H.Y.; Sadik, M.; Garipagaoglu, M. Types of Bread Preferred by Adult Individuals and Bread's Place in Daily Nutrition. *Progr. Nutr.* **2021**, *23*, e2021096. [CrossRef]
9. Brites, L.T.G.F.; Rebellato, A.P.; Meinhart, A.D.; Godoy, H.T.; Pallone, J.A.L.; Steel, C.J. Technological, Sensory, Nutritional and Bioactive Potential of Pan Breads Produced with Refined and Whole Grain Buckwheat Flours. *Food Chem. X* **2022**, *13*, 100243. [CrossRef]
10. Lin, S.; Jin, X.; Gao, J.; Qiu, Z.; Ying, J.; Wang, Y.; Dong, Z.; Zhou, W. Impact of Wheat Bran Micronization on Dough Properties and Bread Quality: Part II—Quality, Antioxidant and Nutritional Properties of Bread. *Food Chem.* **2022**, *396*, 133631. [CrossRef]
11. Torbica, A.; Radosavljević, M.; Belović, M.; Djukić, N.; Marković, S. Overview of Nature, Frequency and Technological Role of Dietary Fibre from Cereals and Pseudocereals from Grain to Bread. *Carbohydr. Polym.* **2022**, *290*, 119470. [CrossRef]
12. Fărcaș, A.C.; Socaci, S.A.; Tofană, M.; Mureşan, C.; Mududra, E.; Salanţă, L.; Scrob, S. Nutritional Properties and Volatile Profile of Brewer's Spent Grain Supplemented Bread. *Rom. Biotechnol. Lett.* **2014**, *19*, 9705–9714.
13. Afrin, S.; Sidhu, S. In Vitro Study to Evaluate Anti-Inflammatory Properties of Sorghum Extract Supplemented Bread. *Future Foods* **2021**, *4*, 100039. [CrossRef]
14. Komeroski, M.R.; Homem, R.V.; de Schmidt, H.O.; Rockett, F.C.; de Lira, L.; da Farias, D.V.; Kist, T.L.; Doneda, D.; de Rios, A.O.; de Oliveira, V.R. Effect of Whey Protein and Mixed Flours on the Quality Parameters of Gluten-Free Breads. *Int. J. Gastron. Food Sci.* **2021**, *24*, 100361. [CrossRef]
15. Jiang, G.; Feng, X.; Wu, Z.; Li, S.; Bai, X.; Zhao, C.; Ameer, K. Development of Wheat Bread Added with Insoluble Dietary Fiber from Ginseng Residue and Effects on Physiochemical Properties, in Vitro Adsorption Capacities and Starch Digestibility. *LWT* **2021**, *149*, 111855. [CrossRef]
16. Mollakhalili-Meybodi, N.; Arab, M.; Nematollahi, A.; Mousavi Khaneghah, A. Prebiotic Wheat Bread: Technological, Sensorial and Nutritional Perspectives and Challenges. *LWT* **2021**, *149*, 111823. [CrossRef]
17. Arise, A.K.; Akeem, S.A.; Olagunju, O.F.; Opaleke, O.D.; Adeyemi, D.T. Development and Quality Evaluation of Wheat Cookies Enriched with Bambara Groundnut Protein Isolate Alone or in Combination with Ripe Banana Mash. *Appl. Food Res.* **2021**, *1*, 100003. [CrossRef]
18. Desai, N.M.; Mallik, B.; Sakhare, S.D.; Murthy, P.S. Prebiotic Oligosaccharide Enriched Green Coffee Spent Cookies and Their Nutritional, Physicochemical and Sensory Properties. *LWT* **2020**, *134*, 109924. [CrossRef]
19. Liu, J.; Tetens, I.; Bredie, W.L.P. Consumer Perception and Sensory Properties of Bakery Products Fortified with Chicken Protein for Older Adults. *Int. J. Gastron. Food Sci.* **2022**, *27*, 100484. [CrossRef]
20. Lucini Mas, A.; Brigante, F.I.; Salvucci, E.; Pigni, N.B.; Martinez, M.L.; Ribotta, P.; Wunderlin, D.A.; Baroni, M.V. Defatted Chia Flour as Functional Ingredient in Sweet Cookies. How Do Processing, Simulated Gastrointestinal Digestion and Colonic Fermentation Affect Its Antioxidant Properties? *Food Chem.* **2020**, *316*, 126279. [CrossRef]
21. Precheur, I.; Brocker, P.; Schneider, S.; Darque-Ceretti, E.; Barthelemi, C.; Peesci-Bardon, C. LB014 Development of Hyperproteic and Hyperenergetic Cookies: A Solid Nutritional Supplement for Patients with Masticatory Disabilities. *Clin. Nutr. Suppl.* **2010**, *5*, 200. [CrossRef]
22. Abdullah, M.M.; Aldughpassi, A.D.H.; Sidhu, J.S.; Al-Foudari, M.Y.; Al-Othman, A.R.A. Effect of Psyllium Husk Addition on the Instrumental Texture and Consumer Acceptability of High-Fiber Wheat Pan Bread and Buns. *Ann. Agric. Sci.* **2021**, *66*, 75–80. [CrossRef]
23. Delicato, C.; Schouteten, J.J.; Dewettinck, K.; Gellynck, X.; Tzompa-Sosa, D.A. Consumers' Perception of Bakery Products with Insect Fat as Partial Butter Replacement. *Food Qual. Prefer.* **2020**, *79*, 103755. [CrossRef]
24. Faceto, D. Correlation Between Sensory and Instrumental Texture Analysis of Expanded and Flake-Shaped Breakfast Cereals. Ph.D. Thesis, UNESP—Universidade Estadual Paulista, São Paulo, Brazil, April 2019.
25. Heberle, T.; Ávila, B.P.; do Nascimento, L.Á.; Gularte, M.A. Consumer Perception of Breads Made with Germinated Rice Flour and Its Nutritional and Technological Properties. *Appl. Food Res.* **2022**, *2*, 100142. [CrossRef]
26. Korcari, D.; Secchiero, R.; Laureati, M.; Marti, A.; Cardone, G.; Rabitti, N.S.; Ricci, G.; Fortina, M.G. Technological Properties, Shelf Life and Consumer Preference of Spelt-Based Sourdough Bread Using Novel, Selected Starter Cultures. *LWT* **2021**, *151*, 112097. [CrossRef]
27. Mitelut, A.C.; Popa, E.E.; Popescu, P.A.; Popa, M.E. Trends of Innovation in Bread and Bakery Production, Chapter 7. In *Trends in Wheat and Bread Making*; Galanakis, C.M., Ed.; Academic Press: Cambridge, MA, USA, 2021; pp. 199–226. ISBN 978-0-12-821048-2.
28. Qian, M.; Liu, D.; Zhang, X.; Yin, Z.; Ismail, B.B.; Ye, X.; Guo, M. A Review of Active Packaging in Bakery Products: Applications and Future Trends. *Trends Food Sci. Technol.* **2021**, *114*, 459–471. [CrossRef]
29. Barbosa, C.; Rocha, S.; Alves, M.R. Tecnoalimentar—Revista da Indústria Alimentar. 2018.
30. Funami, T.; Nakauma, M. Instrumental Food Texture Evaluation in Relation to Human Perception. *Food Hydrocoll.* **2022**, *124*, 107253. [CrossRef]

31. OEC. Baked Goods. Available online: https://oec.world/en/profile/hs/baked-goods (accessed on 3 August 2022).
32. Silva, V.B.; Costa, M.P. Rheology Applied to Dairy Products. *Rheol. Open Access* **2017**, *1*, e104.
33. García-Gómez, B.; Fernández-Canto, N.; Vázquez-Odériz, M.L.; Quiroga-García, M.; Muñoz-Ferreiro, N.; Romero-Rodríguez, M.Á. Sensory Descriptive Analysis and Hedonic Consumer Test for Galician Type Breads. *Food Control* **2022**, *134*, 108765. [CrossRef]
34. Hasgucmen, C.K.; Sengun, I.Y. Viability of Probiotic Strain Lactobacillus Rhamnosus and Its Impact on Sensory Properties of Cheesecake during Storage at −20 °C and 4 °C. *LWT* **2020**, *134*, 109967. [CrossRef]
35. Kpossa, M.R.; Lick, E. Visual Merchandising of Pastries in Foodscapes: The Influence of Plate Colours on Consumers' Flavour Expectations and Perceptions. *J. Retail. Consum. Serv.* **2020**, *52*, 101684. [CrossRef]
36. Rahman, M.S.; Al-Attabi, Z.H.; Al-Habsi, N.; Al-Khusaibi, M. Measurement of Instrumental Texture Profile Analysis (TPA) of Foods. In *Techniques to Measure Food Safety and Quality: Microbial, Chemical, and Sensory*; Khan, M.S., Shafiur Rahman, M., Eds.; Springer International Publishing: Cham, Switzerland, 2021; pp. 427–465. ISBN 978-3-030-68636-9.
37. Brennan, G.; Lomasky, L. Inefficient Unanimity. *J. Appl. Philos.* **1984**, *1*, 151–163. [CrossRef]
38. Bourne, M.C. Texture Profile Analysis. *Food Technol.* **1978**, *32*, 62–66.
39. Szczesniak, A.S. Classification of Textural Characteristicsa. *J. Food Sci.* **1963**, *28*, 385–389. [CrossRef]
40. Chung, C.; Olson, K.; Degner, B.; McClements, D.J. Textural Properties of Model Food Sauces: Correlation between Simulated Mastication and Sensory Evaluation Methods. *Food Res. Int.* **2013**, *51*, 310–320. [CrossRef]
41. Lassoued, N.; Delarue, J.; Launay, B.; Michon, C. Baked Product Texture: Correlations between Instrumental and Sensory Characterization Using Flash Profile. *J. Cereal Sci.* **2008**, *48*, 133–143. [CrossRef]
42. Paula, A.M.; Conti-Silva, A.C. Texture Profile and Correlation between Sensory and Instrumental Analyses on Extruded Snacks. *J. Food Eng.* **2014**, *121*, 9–14. [CrossRef]
43. Hellyer, J. Quality testing with instrumental texture analysis in food manufacturing. *LPI Contrib. J.* **2004**, 1–3.
44. Kock, H.L.; Magano, N.N. Sensory Tools for the Development of Gluten-Free Bakery Foods. *J. Cereal Sci.* **2020**, *94*, 102990. [CrossRef]
45. Carmo, J.L. Manual de Boas Práticas em Análise Sensorial. Master's Thesis, Food Quality and Technology, Instituto Politécnico de Viseu, Viseu, Portugal, 2018.
46. Zenebon, O.; Pascuet, N.S.; Tiglea, P. *Métodos Físico-Químicos Para Análise de Alimentos*, 4th ed.; Instituto Adolfo Lutz: São Paulo, Brasil, 2008.
47. de Alcantara, M.; De Grandi Castro Freitas-Sá, D. Rapid and versatile sensory descriptive methods—An updating of sensory science. *Braz. J. Food Technol.* **2018**, *21*, e2016179. [CrossRef]
48. Caballero, B.; Finglas, P.-M.; Toldrá, F. *Encyclopedia of Food and Health*; Academic Press: Cambridge, MA, USA, 2016.
49. Minim, V.P.R.; Silva, R.C.S.N.; Milagres, M.P.; Martins, E.M.F.; Sampaio, S.C.S.A.; Vasconcelos, C.M. Descriptive Analysis: Comparation between Methodologies. *J. Candido Torres Dairy Inst.* **2010**, *374*, 41–48.
50. Barbosa-Cánovas, G.; Mortimer, A.; Lineback, D.; Spiess, W.; Buckle, K.; Colonna, P. *Global Issues in Food Science and Technology*; Academic Press: Cambridge, MA, USA, 2009.
51. Djekic, I.; Lorenzo, J.M.; Munekata, P.E.S.; Gagaoua, M.; Tomasevic, I. Review on Characteristics of Trained Sensory Panels in Food Science. *J. Texture Stud.* **2021**, *52*, 501–509. [CrossRef]
52. Correia, P.; Guiné, R.P.F.; Fonseca, M.; Batista, L. Analysis of Textural Properties of Gluten Free Breads. *J. Hyg. Eng. Des.* **2021**, *34*, 102–108.
53. Guiné, R.; Correia, P.; Gonçalves, I. Samosas with Shiitake Mushroom Byproducts: Chemical and Physical Characterization. *Millenium J. Educ. Technol. Health* **2019**, *2*, 81–91. [CrossRef]
54. Guiné, R.P.F. Evaluation of colour and texture of a Portuguese traditional sweet: "Egg chestnut". *Agric. Food* **2016**, *4*, 160–170.
55. Almendras, J.C.S.; Kirigin, J.A.A. Estudio estadístico de pruebas sensoriales de harinas compuestas para panificación. *Rev. Boliv. Quím.* **2011**, *28*, 79–82.
56. Acosta-Estrada, B.A.; Lazo-Vélez, M.A.; Nava-Valdez, Y.; Gutiérrez-Uribe, J.A.; Serna-Saldívar, S.O. Improvement of Dietary Fiber, Ferulic Acid and Calcium Contents in Pan Bread Enriched with Nejayote Food Additive from White Maize (*Zea mays*). *J. Cereal Sci.* **2014**, *60*, 264–269. [CrossRef]
57. Aldughpassi, A.; Alkandari, S.; Alkandari, D.; Al-Hassawi, F.; Sidhu, J.S.; Al-Amiri, H.A.; Al-Salem, E. Effect of Psyllium Fiber Addition on the Quality of Arabic Flatbread (Pita) Produced in a Commercial Bakery. *Ann. Agric. Sci.* **2021**, *66*, 115–120. [CrossRef]
58. Alvarez, M.D.; Herranz, B.; Jiménez, M.J.; Canet, W. End-Product Quality Characteristics and Consumer Response of Chickpea Flour-Based Gluten-Free Muffins Containing Corn Starch and Egg White. *J. Texture Stud.* **2017**, *48*, 550–561. [CrossRef]
59. Amani, H.; Firtha, F.; Jakab, I.; Baranyai, L.; Badak-Kerti, K. Nondestructive Evaluation of Baking Parameters on Pogácsa Texture. *J. Texture Stud.* **2021**, *52*, 510–519. [CrossRef]
60. Ammar, A.-F.; Zhang, H.; Siddeeg, A.; Chamba, M.V.M.; Kimani, B.G.; Hassanin, H.; Obadi, M.; Alhejj, N. Effect of the Addition of Alhydwan Seed Flour on the Dough Rheology, Bread Quality, Texture Profile and Microstructure of Wheat Bread. *J. Texture Stud.* **2016**, *47*, 484–495. [CrossRef]
61. Baixauli, R.; Sanz, T.; Salvador, A.; Fiszman, S.M. Influence of the Dosing Process on the Rheological and Microstructural Properties of a Bakery Product. *Food Hydrocoll.* **2007**, *21*, 230–236. [CrossRef]

62. Başar, Ş.; Karaoğlu, M.M. The Effects of Cephalaria Syriaca Flour on Physical, Rheological and Textural Properties of Sunn Pest (Eurygaster Integriceps) Damaged Wheat Dough and Bread. *J. Cereal Sci.* **2021**, *99*, 103215. [CrossRef]
63. Berta, M.; Koelewijn, I.; Öhgren, C.; Stading, M. Effect of Zein Protein and Hydroxypropyl Methylcellulose on the Texture of Model Gluten-Free Bread. *J. Texture Stud.* **2019**, *50*, 341–349. [CrossRef]
64. Bockstaele, F.; Debonne, E.; De Leyn, I.; Wagemans, K.; Eeckhout, M. Impact of Temporary Frozen Storage on the Safety and Quality of Four Typical Belgian Bakery Products. *LWT* **2021**, *137*, 110454. [CrossRef]
65. Bolger, A.M.; Rastall, R.A.; Oruna-Concha, M.J.; Rodriguez-Garcia, J. Effect of D-Allulose, in Comparison to Sucrose and d-Fructose, on the Physical Properties of Cupcakes. *LWT* **2021**, *150*, 111989. [CrossRef]
66. Bora, P.; Ragaee, S.; Abdel-Aal, E.-S.M. Effect of Incorporation of Goji Berry By-Product on Biochemical, Physical and Sensory Properties of Selected Bakery Products. *LWT* **2019**, *112*, 108225. [CrossRef]
67. Bouazizi, S.; Montevecchi, G.; Antonelli, A.; Hamdi, M. Effects of Prickly Pear (Opuntia Ficus-Indica, L.) Peel Flour as an Innovative Ingredient in Biscuits Formulation. *LWT* **2020**, *124*, 109155. [CrossRef]
68. Bressiani, J.; Oro, T.; Santetti, G.S.; Almeida, J.L.; Bertolin, T.E.; Gómez, M.; Gutkoski, L.C. Properties of Whole Grain Wheat Flour and Performance in Bakery Products as a Function of Particle Size. *J. Cereal Sci.* **2017**, *75*, 269–277. [CrossRef]
69. Castelló, M.L.; Echevarrías, A.; Rubio-Arraez, S.; Ortolá, M.D. How Isomaltulose and Oligofructose Affect Physicochemical and Sensory Properties of Muffins? *J. Texture Stud.* **2021**, *52*, 410–419. [CrossRef]
70. Chin, N.L.; Abdullah, R.; Yusof, Y.A. Glazing Effects on Bread Crust and Crumb Staling During Storage. *J. Texture Stud.* **2011**, *42*, 459–467. [CrossRef]
71. Correia, P.M.R.; Gonzaga, M.; Batista, L.M.; Beirão-Costa, L.; Guiné, R.F.P. Development and Characterization of Wheat Bread with Lupin Flour. *Int. J. Nutr. Food Eng.* **2015**, *9*, 1077–1081.
72. da Costa, R.T.; da Silva, S.C.; Silva, L.S.; da Silva, W.A.; Gonçalves, A.C.A.; Pires, C.V.; Martins, A.M.D.; Chávez, D.W.H.; Trombete, F.M.; Costa, R.T.d.; et al. Whole Chickpea Flour as an Ingredient for Improving the Nutritional Quality of Sandwich Bread: Effects on Sensory Acceptance, Texture Profile, and Technological Properties. *Rev. Chil. Nutr.* **2020**, *47*, 933–940. [CrossRef]
73. Cruz-Vazquez, C.; Adriana, V.-C.; Gaspar, E.-C.; Aurelio, D.-L. Effect of Baking Powder as a Substitute of Pork Lard on the Texture of Mexican Tamales. *Int. J. Gastron. Food Sci.* **2021**, *25*, 100387. [CrossRef]
74. Diez-Sánchez, E.; Llorca, E.; Tárrega, A.; Fiszman, S.; Hernando, I. Changing Chemical Leavening to Improve the Structural, Textural and Sensory Properties of Functional Cakes with Blackcurrant Pomace. *LWT* **2020**, *127*, 109378. [CrossRef]
75. Duan, H.; Gu, S.; Zhao, L.; Lu, D. Establishment of Fracturability Standard Reference Scale by Instrumental and Sensory Analysis of Chinese Food. *J. Texture Stud.* **2014**, *45*, 148–154. [CrossRef]
76. Dudu, O.E.; Ma, Y.; Adelekan, A.; Oyedeji, A.B.; Oyeyinka, S.A.; Ogungbemi, J.W. Bread-Making Potential of Heat-Moisture Treated Cassava Flour-Additive Complexes. *LWT* **2020**, *130*, 109477. [CrossRef]
77. Ekin, M.M.; Kutlu, N.; Meral, R.; Ceylan, Z.; Cavidoglu, İ. A Novel Nanotechnological Strategy for Obtaining Fat-Reduced Cookies in Bakery Industry: Revealing of Sensory, Physical Properties, and Fatty Acid Profile of Cookies Prepared with Oil-Based Nanoemulsions. *Food Biosci.* **2021**, *42*, 101184. [CrossRef]
78. Elkhalifa, A.E.O.; El-Tinay, A.H. Effect of Cysteine on Bakery Products from Wheat-Sorghum Blends. *Food Chem.* **2002**, *77*, 133–137. [CrossRef]
79. Ellouze-Ghorbel, R.; Kamoun, A.; Neifar, M.; Belguith, S.; Ayadi, M.A.; Kamoun, A.; Ellouze-Chaabouni, S. Development of Fiber-Enriched Biscuits Formula by a Mixture Design. *J. Texture Stud.* **2010**, *41*, 472–491. [CrossRef]
80. Erdem, B.G.; Kaya, S. Production and Application of Freeze Dried Biocomposite Coating Powders from Sunflower Oil and Soy Protein or Whey Protein Isolates. *Food Chem.* **2021**, *339*, 127976. [CrossRef]
81. Esteller, M.S.; de Yoshimoto, R.M.O.; Amaral, R.L.; da Lannes, S.C.S. Sugar effect on bakery products. *Food Sci. Technol* **2004**, *24*, 602–607.
82. Esteller, M.S.; Pitombo, R.N.M.; Lannes, S.C.S. Effect of Freeze-Dried Gluten Addition on Texture of Hamburger Buns. *J. Cereal Sci.* **2005**, *41*, 19–21. [CrossRef]
83. Felisberto, M.H.F.; Wahanik, A.L.; Gomes-Ruffi, C.R.; Clerici, M.T.P.S.; Chang, Y.K.; Steel, C.J. Use of Chia (*Salvia hispanica*, L.) Mucilage Gel to Reduce Fat in Pound Cakes. *LWT Food Sci. Technol.* **2015**, *63*, 1049–1055. [CrossRef]
84. Fernández-Michel, S.; Ramos-Clamont Montfort, G.; Vázquez-Moreno, L. Physicochemical and Microbiological Characteristics and Sensory Analysis of Chocolate Cakes Added with Porcine Serum Proteins. *Rev. Científica* **2006**, *16*, 315–324.
85. Ferreira, T.H.B.; de Lima dos Reis, A.P.; da Souza, L.S.; de Rodrigues, H.O.; de Guimarães, R.C.A.; Munhoz, C.L. Physical, Chemical, Sensory and Mineral Characterization of Salty Muffins Enriched with *Tetragonia Tetragonoides*. *Braz. J. Food Technol.* **2021**, *24*, e2020189. [CrossRef]
86. Filipčev, B.; Šimurina, O.; Dapčević Hadnađev, T.; Jevtić-Mučibabić, R.; Filipović, V.; Lončar, B. Effect of Liquid (Native) and Dry Molasses Originating from Sugar Beet on Physical and Textural Properties of Gluten-Free Biscuit and Biscuit Dough. *J. Texture Stud.* **2015**, *46*, 353–364. [CrossRef]
87. Fu, Y.; Liu, X.; Xie, Q.; Chen, L.; Chang, C.; Wu, W.; Xiao, S.; Wang, X. Effects of Laminaria Japonica Polysaccharides on the Texture, Retrogradation, and Structure Performances in Frozen Dough Bread. *LWT* **2021**, *151*, 112239. [CrossRef]
88. Gámbaro, A.; Giménez, A.; Ares, G.; Gilardi, V. Influence of Enzymes on the Texture of Brown Pan Bread. *J. Texture Stud.* **2006**, *37*, 300–314. [CrossRef]

89. Gharaie, Z.; Azizi, M.H.; Barzegar, M.; Ahmadi Gavlighi, H. Gum Tragacanth Oil/Gels as an Alternative to Shortening in Cookies: Rheological, Chemical and Textural Properties. *LWT* **2019**, *105*, 265–271. [CrossRef]
90. Giannini, T.C.; Cordeiro, G.D.; Freitas, B.M.; Saraiva, A.M.; Imperatriz-Fonseca, V.L. The Dependence of Crops for Pollinators and the Economic Value of Pollination in Brazil. *J. Econ. Entomol.* **2015**, *108*, 849–857. [CrossRef]
91. de Gomes, D.S.; Rosa, L.S.; do Cordoba, L.P.; Fiorda-Mello, F.; Spier, M.R.; Waszczynskyj, N. Development of Muffins with Green Pea Flour and Their Physical and Sensory Evaluation and Essential Amino Acid Content. *Ciência Rural* **2022**, *52*, e20200693.
92. Gostin, A.I. Effects of Substituting Refined Wheat Flour with Wholemeal and Quinoa Flour on the Technological and Sensory Characteristics of Salt-Reduced Breads. *LWT* **2019**, *114*, 108412. [CrossRef]
93. Goswami, D.; Gupta, R.K.; Mridula, D.; Sharma, M.; Tyagi, S.K. Barnyard Millet Based Muffins: Physical, Textural and Sensory Properties. *LWT Food Sci. Technol.* **2015**, *64*, 374–380. [CrossRef]
94. Grillo, O.; Rizzo, V.; Saccone, R.; Fallico, B.; Mazzaglia, A.; Venora, G.; Muratore, G. Use of Image Analysis to Evaluate the Shelf Life of Bakery Products. *Food Res. Int.* **2014**, *62*, 514–522. [CrossRef]
95. Guiné, R.; Correia, P.; Florença, S.G.; Gonçalves, I. Development of Products with Shiitake Mushroom: Chemical, Physical and Sensory Characterization. *Chem. Res. J.* **2019**, *4*, 30–39.
96. Guiné, R.P.F.; Santos, C.; Rocha, C.; Marques, C.; Rodrigues, C.; Manita, F.; Sousa, F.; Félix, M.; Silva, S.; Rodrigues, S. Whey-Bread, an Improved Food Product: Evaluation of Textural Characteristics. *J. Culin. Sci. Technol.* **2020**, *18*, 40–53. [CrossRef]
97. Guiné, R.P.F.; Souta, A.; Gürbüz, B.; Almeida, E.; Lourenço, J.; Marques, L.; Pereira, R.; Gomes, R. Textural Properties of Newly Developed Cookies Incorporating Whey Residue. *J. Culin. Sci. Technol.* **2020**, *18*, 317–332. [CrossRef]
98. Gupta, M.; Bawa, A.S.; Abu-Ghannam, N. Effect of Barley Flour and Freeze-Thaw Cycles on Textural Nutritional and Functional Properties of Cookies. *Food Bioprod. Processing* **2011**, *89*, 520–527. [CrossRef]
99. Gutiérrez, L.; Sánchez, C.; Batlle, R.; Nerín, C. New Antimicrobial Active Package for Bakery Products. *Trends Food Sci. Technol.* **2009**, *20*, 92–99. [CrossRef]
100. Jan, K.N.; Panesar, P.S.; Singh, S. Optimization of Antioxidant Activity, Textural and Sensory Characteristics of Gluten-Free Cookies Made from Whole Indian Quinoa Flour. *LWT* **2018**, *93*, 573–582. [CrossRef]
101. Jan, R.; Saxena, D.C.; Singh, S. Physico-Chemical, Textural, Sensory and Antioxidant Characteristics of Gluten-Free Cookies Made from Raw and Germinated Chenopodium (*Chenopodium album*) Flour. *LWT Food Sci. Technol.* **2016**, *71*, 281–287. [CrossRef]
102. Ji, Y.; Zhu, K.; Chen, Z.-C.; Zhou, H.; Ma, J.; Qian, H. Effects of Different Additives on Rice Cake Texture and Cake Staling. *J. Texture Stud.* **2010**, *41*, 703–713. [CrossRef]
103. Kaur, P.; Sharma, P.; Kumar, V.; Panghal, A.; Kaur, J.; Gat, Y. Effect of Addition of Flaxseed Flour on Phytochemical, Physicochemical, Nutritional, and Textural Properties of Cookies. *J. Saudi Soc. Agric. Sci.* **2019**, *18*, 372–377. [CrossRef]
104. Kavitake, D.; Kalahasti, K.K.; Devi, P.B.; Ravi, R.; Shetty, P.H. Galactan Exopolysaccharide Based Flavour Emulsions and Their Application in Improving the Texture and Sensorial Properties of Muffin. *Bioact. Carbohydr. Diet. Fibre* **2020**, *24*, 100248. [CrossRef]
105. Khiabani, A.A.; Tabibiazar, M.; Roufegarinejad, L.; Hamishehkar, H.; Alizadeh, A. Preparation and Characterization of Carnauba Wax/Adipic Acid Oleogel: A New Reinforced Oleogel for Application in Cake and Beef Burger. *Food Chem.* **2020**, *333*, 127446. [CrossRef]
106. Kim, E.H.-J.; Corrigan, V.K.; Wilson, A.J.; Waters, I.R.; Hedderley, D.I.; Morgenstern, M.P. Fundamental Fracture Properties Associated with Sensory Hardness of Brittle Solid Foods. *J. Texture Stud.* **2012**, *43*, 49–62. [CrossRef]
107. Kim, J.-M.; Shin, M. Effects of Particle Size Distributions of Rice Flour on the Quality of Gluten-Free Rice Cupcakes. *LWT Food Sci. Technol.* **2014**, *59*, 526–532. [CrossRef]
108. Kouhsari, F.; Saberi, F.; Kowalczewski, P.Ł.; Lorenzo, J.M.; Kieliszek, M. Effect of the Various Fats on the Structural Characteristics of the Hard Dough Biscuit. *LWT* **2022**, *159*, 113227. [CrossRef]
109. Kowalski, S.; Mikulec, A.; Mickowska, B.; Skotnicka, M.; Mazurek, A. Wheat Bread Supplementation with Various Edible Insect Flours. Influence of Chemical Composition on Nutritional and Technological Aspects. *LWT* **2022**, *159*, 113220. [CrossRef]
110. Kurek, M.A.; Wyrwisz, J.; Piwińska, M.; Wierzbicka, A. Influence of the Wheat Flour Extraction Degree in the Quality of Bread Made with High Proportions of β-Glucan. *Food Sci. Technol.* **2015**, *35*, 273–278.
111. Lau, T.; Clayton, T.; Harbourne, N.; Rodriguez-Garcia, J.; Oruna-Concha, M.J. Sweet Corn Cob as a Functional Ingredient in Bakery Products. *Food Chem. X* **2022**, *13*, 100180. [CrossRef] [PubMed]
112. Lebesi, D.M.; Tzia, C. Use of Endoxylanase Treated Cereal Brans for Development of Dietary Fiber Enriched Cakes. *Innov. Food Sci. Emerg. Technol.* **2012**, *13*, 207–214. [CrossRef]
113. Li, S.; Wu, G.; Li, X.; Jin, Q.; Wang, X.; Zhang, H. Roles of Gelator Type and Gelation Technology on Texture and Sensory Properties of Cookies Prepared with Oleogels. *Food Chem.* **2021**, *356*, 129667. [CrossRef] [PubMed]
114. Liang, L.; Omedi, J.O.; Huang, W.; Zheng, J.; Zeng, Y.; Huang, J.; Zhang, B.; Zhou, L.; Li, N.; Gao, T.; et al. Antioxidant, Flavor Profile and Quality of Wheat Dough Bread Incorporated with Kiwifruit Fermented by β-Glucosidase Producing Lactic Acid Bacteria Strains. *Food Biosci.* **2022**, *46*, 101450. [CrossRef]
115. da Machado, C.R.; Thys, R.C.S. Cricket Powder (*Gryllus assimilis*) as a New Alternative Protein Source for Gluten-Free Breads. *Innov. Food Sci. Emerg. Technol.* **2019**, *56*, 102180. [CrossRef]
116. Majzoobi, M.; Vosooghi Poor, Z.; Mesbahi, G.; Jamalian, J.; Farahnaky, A. Effects of Carrot Pomace Powder and a Mixture of Pectin and Xanthan on the Quality of Gluten-Free Batter and Cakes. *J. Texture Stud.* **2017**, *48*, 616–623. [CrossRef] [PubMed]

117. Majzoobi, M.; Mohammadi, M.; Mesbahi, G.; Farahnaky, A. Feasibility Study of Sucrose and Fat Replacement Using Inulin and Rebaudioside A in Cake Formulations. *J. Texture Stud.* **2018**, *49*, 468–475. [CrossRef]
118. Marcet, I.; Paredes, B.; Díaz, M. Egg Yolk Granules as Low-Cholesterol Replacer of Whole Egg Yolk in the Preparation of Gluten-Free Muffins. *LWT Food Sci. Technol.* **2015**, *62*, 613–619. [CrossRef]
119. Marcet, I.; Collado, S.; Paredes, B.; Díaz, M. Rheological and Textural Properties in a Bakery Product as a Function of the Proportions of the Egg Yolk Fractions: Discussion and Modelling. *Food Hydrocoll.* **2016**, *54*, 119–129. [CrossRef]
120. Marchetti, L.; Califano, A.N.; Andres, S.C. Partial Replacement of Wheat Flour by Pecan Nut Expeller Meal on Bakery Products. Effect on Muffins Quality. *LWT* **2018**, *95*, 85–91. [CrossRef]
121. de Marques, G.A.; de São José, J.F.B.; Silva, D.A.; Silva, E.M.M. da Whey Protein as a Substitute for Wheat in the Development of No Added Sugar Cookies. *LWT Food Sci. Technol.* **2016**, *67*, 118–126. [CrossRef]
122. Martinez-Saez, N.; García, A.T.; Pérez, I.D.; Rebollo-Hernanz, M.; Mesías, M.; Morales, F.J.; Martín-Cabrejas, M.A.; del Castillo, M.D. Use of Spent Coffee Grounds as Food Ingredient in Bakery Products. *Food Chem.* **2017**, *216*, 114–122. [CrossRef]
123. Mattice, K.D.; Marangoni, A.G. Matrix Effects on the Crystallization Behaviour of Butter and Roll-in Shortening in Laminated Bakery Products. *Food Res. Int.* **2017**, *96*, 54–63. [CrossRef] [PubMed]
124. Meziani, S.; Kaci, M.; Jacquot, M.; Jasniewski, J.; Ribotta, P.; Muller, J.-M.; Ghoul, M.; Desobry, S. Effect of Freezing Treatments and Yeast Amount on Sensory and Physical Properties of Sweet Bakery Products. *J. Food Eng.* **2012**, *111*, 336–342. [CrossRef]
125. Mieszkowska, A.; Marzec, A. Structure Analysis of Short-Dough Biscuits and Its Correlation with Sensory Discriminants. *J. Texture Stud.* **2015**, *46*, 313–320. [CrossRef]
126. Milner, L.; Kerry, J.P.; O'Sullivan, M.G.; Gallagher, E. Physical, Textural and Sensory Characteristics of Reduced Sucrose Cakes, Incorporated with Clean-Label Sugar-Replacing Alternative Ingredients. *Innov. Food Sci. Emerg. Technol.* **2020**, *59*, 102235. [CrossRef]
127. Mirab, B.; Ahmadi Gavlighi, H.; Amini Sarteshnizi, R.; Azizi, M.H.; Udenigwe, C. Production of Low Glycemic Potential Sponge Cake by Pomegranate Peel Extract (PPE) as Natural Enriched Polyphenol Extract: Textural, Color and Consumer Acceptability. *LWT* **2020**, *134*, 109973. [CrossRef]
128. Mudgil, D.; Barak, S.; Khatkar, B.S. Optimization of Bread Firmness, Specific Loaf Volume and Sensory Acceptability of Bread with Soluble Fiber and Different Water Levels. *J. Cereal Sci.* **2016**, *70*, 186–191. [CrossRef]
129. Mudgil, D.; Barak, S.; Khatkar, B.S. Cookie Texture, Spread Ratio and Sensory Acceptability of Cookies as a Function of Soluble Dietary Fiber, Baking Time and Different Water Levels. *LWT* **2017**, *80*, 537–542. [CrossRef]
130. Naseer, B.; Naik, H.R.; Hussain, S.Z.; Zargar, I.; Bhat, T.A.; Nazir, N. Effect of Carboxymethyl Cellulose and Baking Conditions on In-Vitro Starch Digestibility and Physico-Textural Characteristics of Low Glycemic Index Gluten-Free Rice Cookies. *LWT* **2021**, *141*, 110885. [CrossRef]
131. Ngemakwe, P.H.N.; Le Roes-Hill, M.; Jideani, V.A. Effects of Carboxymethylcellulose, Yoghurt and Transglutaminase on Textural Properties of Oat Bread. *J. Texture Stud.* **2016**, *47*, 74–84. [CrossRef]
132. Nieto-Mazzocco, E.; Saldaña-Robles, A.; Franco-Robles, E.; Mireles-Arriaga, A.I.; Mares-Mares, E.; Ozuna, C. Optimization of Gluten-Free Muffin Formulation with Agavin-Type Fructans as Fat and Sucrose Replacer Using Response Surface Methodology. *Future Foods* **2022**, *5*, 100112. [CrossRef]
133. Nikolić, I.; Dokić, L.; Krstonošić, V.; Šereš, Z.; Šoronja-Simović, D. Possibility of the Production of Functional Low-Fat Food Spread of Hull-Less Pumpkin Seed Flour from Rheological and Textural Aspect. *J. Texture Stud.* **2014**, *45*, 324–333. [CrossRef]
134. Obadi, M.; Zhu, K.-X.; Peng, W.; Sulieman, A.A.; Mahdi, A.A.; Mohammed, K.; Zhou, H.-M. Shelf Life Characteristics of Bread Produced from Ozonated Wheat Flour. *J. Texture Stud.* **2018**, *49*, 492–502. [CrossRef] [PubMed]
135. Ochoa, J.D.L.; Betancur, M.C.; Sandoval, E.R.; Ochoa, J.D.L.; Betancur, M.C.; Sandoval, E.R. Effect of fumaric acid on the quality characteristics of muffins. *Rev. Lasallista Investig.* **2017**, *14*, 9–19. [CrossRef]
136. Ouiddir, M.; Bettache, G.; Leyva Salas, M.; Pawtowski, A.; Donot, C.; Brahimi, S.; Mabrouk, K.; Coton, E.; Mounier, J. Selection of Algerian Lactic Acid Bacteria for Use as Antifungal Bioprotective Cultures and Application in Dairy and Bakery Products. *Food Microbiol.* **2019**, *82*, 160–170. [CrossRef]
137. Paciulli, M.; Littardi, P.; Carini, E.; Paradiso, V.M.; Castellino, M.; Chiavaro, E. Inulin-Based Emulsion Filled Gel as Fat Replacer in Shortbread Cookies: Effects during Storage. *LWT* **2020**, *133*, 109888. [CrossRef]
138. Paraskevopoulou, A.; Anagnostara, I.; Bezati, G.; Rizou, T.; Pavlidou, E.; Vouvoudi, E.; Kiosseoglou, V. Water Extraction Residue from Maize Milling By-Product as a Potential Functional Ingredient for the Enrichment with Fibre of Cakes. *LWT* **2020**, *129*, 109604. [CrossRef]
139. Passos, C.P.; Kukurová, K.; Basil, E.; Fernandes, P.A.R.; Neto, A.; Nunes, F.M.; Murkovic, M.; Ciesarová, Z.; Coimbra, M.A. Instant Coffee as a Source of Antioxidant-Rich and Sugar-Free Coloured Compounds for Use in Bakery: Application in Biscuits. *Food Chem.* **2017**, *231*, 114–121. [CrossRef]
140. da Paz, M.F.; Marques, R.V.; Schumann, C.; Corrêa, L.B.; Corrêa, É.K. Technological characteristics of bread prepared with defatted rice bran. *Braz. J. Food Technol.* **2015**, *18*, 128–136.
141. Perri, G.; Coda, R.; Rizzello, C.G.; Celano, G.; Ampollini, M.; Gobbetti, M.; De Angelis, M.; Calasso, M. Sourdough Fermentation of Whole and Sprouted Lentil Flours: In Situ Formation of Dextran and Effects on the Nutritional, Texture and Sensory Characteristics of White Bread. *Food Chem.* **2021**, *355*, 129638. [CrossRef] [PubMed]

142. Piazza, L.; Gigli, J.; Ballabio, D. On the Application of Chemometrics for the Study of Acoustic-Mechanical Properties of Crispy Bakery Products. *Chemom. Intell. Lab. Syst.* **2007**, *86*, 52–59. [CrossRef]
143. Piazza, L.; Gigli, J.; Benedetti, S. Study of Structure and Flavour Release Relationships in Low Moisture Bakery Products by Means of the Acoustic-Mechanical Combined Technique and the Electronic Nose. *J. Cereal Sci.* **2008**, *48*, 413–419. [CrossRef]
144. Pu, D.; Duan, W.; Huang, Y.; Zhang, L.; Zhang, Y.; Sun, B.; Ren, F.; Zhang, H.; Tang, Y. Characterization of the Dynamic Texture Perception and the Impact Factors on the Bolus Texture Changes during Oral Processing. *Food Chem.* **2021**, *339*, 128078. [CrossRef]
145. Puchol-Miquel, M.; Palomares, C.; Fernández-Segovia, I.; Barat, J.M.; Perez-Esteve, É. Effect of the Type and Degree of Alkalization of Cocoa Powder on the Physico-Chemical and Sensory Properties of Sponge Cakes. *LWT* **2021**, *152*, 112241. [CrossRef]
146. Radočaj, O.; Dimić, E.; Diosady, L.L.; Vujasinović, V. Optimizing the Texture Attributes of a Fat-Based Spread Using Instrumental Measurements. *J. Texture Stud.* **2011**, *42*, 394–403. [CrossRef]
147. Rakmai, J.; Haruthaithanasan, V.; Chompreeda, P.; Chatakanonda, P.; Yonkoksung, U. Development of Gluten-Free and Low Glycemic Index Rice Pancake: Impact of Dietary Fiber and Low-Calorie Sweeteners on Texture Profile, Sensory Properties, and Glycemic Index. *Food Hydrocoll. Health* **2021**, *1*, 100034. [CrossRef]
148. Ran, Q.; Yang, F.; Geng, M.; Qin, L.; Chang, Z.; Gao, H.; Jiang, D.; Zou, C.; Jia, C. A Mixed Culture of *Propionibacterium Freudenreichii* and *Lactiplantibacillus Plantarum* as Antifungal Biopreservatives in Bakery Product. *Food Biosci.* **2022**, *47*, 101456. [CrossRef]
149. Rashidi, A.; HadiNezhad, M.; Rajabzadeh, N.; Yarmand, M.-S.; Nemati, S. Frozen Baguette Bread Dough II. Textural and Sensory Characteristics of Baked Product. *J. Cereal Sci.* **2016**, *70*, 9–15. [CrossRef]
150. Richardson, A.M.; Tyuftin, A.A.; Kilcawley, K.N.; Gallagher, E.; O' Sullivan, M.G.; Kerry, J.P. The Impact of Sugar Particle Size Manipulation on the Physical and Sensory Properties of Chocolate Brownies. *LWT* **2018**, *95*, 51–57. [CrossRef]
151. Rios, R.V.; Garzón, R.; Lannes, S.C.S.; Rosell, C.M. Use of Succinyl Chitosan as Fat Replacer on Cake Formulations. *LWT* **2018**, *96*, 260–265. [CrossRef]
152. Rodrigues, Â.; Correia, P.; Guiné, R. Physical, Chemical and Sensorial Properties of Healthy and Mixture Breads in Portugal. *J. Food Meas. Charact.* **2014**, *8*, 70–80. [CrossRef]
153. Roth, M.; Schuster, H.; Kollmannsberger, H.; Jekle, M.; Becker, T. Changes in Aroma Composition and Sensory Properties Provided by Distiller's Grains Addition to Bakery Products. *J. Cereal Sci.* **2016**, *72*, 75–83. [CrossRef]
154. Różyło, R.; Dziki, D.; Laskowski, J.; Skonecki, S.; Łysiak, G.; Kulig, R.; Różyło, K. Texture and Sensory Evaluation of Composite Wheat-Oat Bread Prepared with Novel Two-Phase Method Using Oat Yeast-Fermented Leaven. *J. Texture Stud.* **2014**, *45*, 235–245. [CrossRef]
155. Salehi, F.; Kashaninejad, M.; Akbari, E.; Sobhani, S.M.; Asadi, F. Potential of Sponge Cake Making Using Infrared-Hot Air Dried Carrot. *J. Texture Stud.* **2016**, *47*, 34–39. [CrossRef]
156. Samray, M.N.; Masatcioglu, T.M.; Koksel, H. Bread Crumbs Extrudates: A New Approach for Reducing Bread Waste. *J. Cereal Sci.* **2019**, *85*, 130–136. [CrossRef]
157. Sarabhai, S.; Tamilselvan, T.; Prabhasankar, P. Role of Enzymes for Improvement in Gluten-Free Foxtail Millet Bread: It's Effect on Quality, Textural, Rheological and Pasting Properties. *LWT* **2021**, *137*, 110365. [CrossRef]
158. Saraç, M.G.; Dedebaş, T.; Hastaoğlu, E.; Arslan, E. Influence of Using Scarlet Runner Bean Flour on the Production and Physicochemical, Textural, and Sensorial Properties of Vegan Cakes: WASPAS-SWARA Techniques. *Int. J. Gastron. Food Sci.* **2022**, *27*, 100489. [CrossRef]
159. Šarić, B.; Dapčević-Hadnađev, T.; Hadnađev, M.; Sakač, M.; Mandić, A.; Mišan, A.; Škrobot, D. Fiber Concentrates from Raspberry and Blueberry Pomace in Gluten-Free Cookie Formulation: Effect on Dough Rheology and Cookie Baking Properties. *J. Texture Stud.* **2019**, *50*, 124–130. [CrossRef]
160. Savitha, Y.S.; Indrani, D.; Prakash, J. Effect of Replacement of Sugar with Sucralose and Maltodextrin on Rheological Characteristics of Wheat Flour Dough and Quality of Soft Dough Biscuits. *J. Texture Stud.* **2008**, *39*, 605–616. [CrossRef]
161. Scarton, M.; Nascimento, G.C.; Felisberto, M.H.F.; de Moro, T.M.A.; Behrens, J.H.; Barbin, D.F.; Clerici, M.T.P.S. Muffin with Pumpkin Flour: Technological, Sensory and Nutritional Quality. *Braz. J. Food Technol.* **2021**, *24*, e2020229. [CrossRef]
162. Scheuer, P.M.; Luccio, M.D.; Zibetti, A.W.; de Miranda, M.Z.; de Francisco, A. Relationship between Instrumental and Sensory Texture Profile of Bread Loaves Made with Whole-Wheat Flour and Fat Replacer. *J. Texture Stud.* **2016**, *47*, 14–23. [CrossRef]
163. Schmelter, L.; Rohm, H.; Struck, S. Gluten-Free Bakery Products: Cookies Made from Different Vicia Faba Bean Varieties. *Future Foods* **2021**, *4*, 100038. [CrossRef]
164. Serin, S.; Sayar, S. The Effect of the Replacement of Fat with Carbohydrate-Based Fat Replacers on the Dough Properties and Quality of the Baked Pogaca: A Traditional High-Fat Bakery Product. *Food Sci. Technol.* **2017**, *37*, 25–32. [CrossRef]
165. de Silva, M.O.; Chaves Almeida, F.L.; da Paixão, R.N.; de Souza, W.F.C.; de Luna Freire, K.R.; de Oliveira, C.P. Preparation and Characterization of Churro Dough with Malt Bagasse Flour. *Int. J. Gastron. Food Sci.* **2022**, *27*, 100427. [CrossRef]
166. Soukoulis, C.; Yonekura, L.; Gan, H.-H.; Behboudi-Jobbehdar, S.; Parmenter, C.; Fisk, I. Probiotic Edible Films as a New Strategy for Developing Functional Bakery Products: The Case of Pan Bread. *Food Hydrocoll.* **2014**, *39*, 231–242. [CrossRef]
167. Sowbhagya, H.B.; Mahadevamma, S.; Indrani, D.; Srinivas, P. Physicochemical and Microstructural Characteristics of Celery Seed Spent Residue and Influence of Its Addition on Quality of Biscuits. *J. Texture Stud.* **2011**, *42*, 369–376. [CrossRef]
168. Takei, R.; Maruyama, K.; Washio, H.; Watanabe, T.; Takahashi, T. Effects of Rheological Properties of Rice Dough during Manufacture of Rice Cracker on the Quality of the End Product. *J. Texture Stud.* **2019**, *50*, 139–147. [CrossRef]

169. Talens, C.; Álvarez-Sabatel, S.; Rios, Y.; Rodríguez, R. Effect of a New Microwave-Dried Orange Fibre Ingredient vs. a Commercial Citrus Fibre on Texture and Sensory Properties of Gluten-Free Muffins. *Innov. Food Sci. Emerg. Technol.* **2017**, *44*, 83–88. [CrossRef]
170. Tavakoli, H.R.; Jonaidi Jafari, N.; Hamedi, H. The Effect of Arabic Gum on Frozen Dough Properties and the Sensory Assessments of the Bread Produced. *J. Texture Stud.* **2017**, *48*, 124–130. [CrossRef]
171. Tinzl-Malang, S.K.; Grattepanche, F.; Rast, P.; Fischer, P.; Sych, J.; Lacroix, C. Purified Exopolysaccharides from Weissella Confusa 11GU-1 and Propionibacterium Freudenreichii JS15 Act Synergistically on Bread Structure to Prevent Staling. *LWT* **2020**, *127*, 109375. [CrossRef]
172. Varghese, C.; Srivastav, P.P. Formulation and Sensory Characterization of Low-Cost, High-Energy, Nutritious Cookies for Undernourished Adolescents: An Approach Using Linear Programming and Fuzzy Logic. *Innov. Food Sci. Emerg. Technol.* **2022**, *75*, 102904. [CrossRef]
173. Wang, S.; Zheng, L.; Zheng, X.; Yang, Y.; Xiao, D.; Zhang, H.; Ai, B.; Sheng, Z. Chitosan Inhibits Advanced Glycation End Products Formation in Chemical Models and Bakery Food. *Food Hydrocoll.* **2022**, *128*, 107600. [CrossRef]
174. Xu, L.; Echeverria-Jaramillo, E.; Shin, W.-S. Physicochemical Properties of Muffins Prepared with Lutein & Zeaxanthin-Enriched Egg Yolk Powder. *LWT* **2022**, *156*, 113017. [CrossRef]
175. Yang, Y.; Zhang, M.; Li, J.; Su, Y.; Gu, L.; Yang, Y.; Chang, C. Construction of Egg White Protein Particle and Rhamnolipid Based Emulsion Gels with β-Sitosterol as Gelation Factor: The Application in Cookie. *Food Hydrocoll.* **2022**, *127*, 107479. [CrossRef]
176. Yüceer, M.; Caner, C. Effects of Protease-Hydrolyzed Egg White on the Meringue Batter Properties and Meringue Textural and Sensory Properties during Storage. *Int. J. Gastron. Food Sci.* **2021**, *25*, 100409. [CrossRef]
177. Zadeike, D.; Jukonyte, R.; Juodeikiene, G.; Bartkiene, E.; Valatkeviciene, Z. Comparative Study of Ciabatta Crust Crispness through Acoustic and Mechanical Methods: Effects of Wheat Malt and Protease on Dough Rheology and Crust Crispness Retention during Storage. *LWT* **2018**, *89*, 110–116. [CrossRef]
178. Zareifard, M.R.; Boissonneault, V.; Marcotte, M. Bakery Product Characteristics as Influenced by Convection Heat Flux. *Food Res. Int.* **2009**, *42*, 856–864. [CrossRef]
179. Zhou, J.; Yan, B.; Wu, Y.; Zhu, H.; Lian, H.; Zhao, J.; Zhang, H.; Chen, W.; Fan, D. Effects of Sourdough Addition on the Textural and Physiochemical Attributes of Microwaved Steamed-Cake. *LWT* **2021**, *146*, 111396. [CrossRef]
180. Zorzi, C.Z.; Garske, R.P.; Flôres, S.H.; Thys, R.C.S. Sunflower Protein Concentrate: A Possible and Beneficial Ingredient for Gluten-Free Bread. *Innov. Food Sci. Emerg. Technol.* **2020**, *66*, 102539. [CrossRef]