

EVALUATION OF THE LABELING OF VEGETARIAN AND VEGAN PRODUCTS MARKETED IN ARACAJU-SERGIPE¹

AVALIAÇÃO DA ROTULAGEM DE PRODUTOS VEGETARIANOS E VEGANOS COMERCIALIZADOS EM ARACAJU-SERGIPE

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ABSTRACT

The increasing demand for vegan and vegetarian products highlights the need for standardized labeling, but the lack of specific regulation in Brazil makes this uniformity difficult. Given this, the objective was to develop a checklist to evaluate the labels of different categories of vegan or vegetarian products marketed in Aracaju, Sergipe. The proposed checklist was based on Brazilian labeling legislation and comprised 35 questions. A total of 587 labels from 197 product brands marketed in hypermarkets across different neighborhoods of Aracaju were evaluated. The main issues identified involved inadequacies in the nutritional information table (36%) and in the indication of the number of servings (18%). 18 hypermarkets in 13 city neighborhoods were visited, where 50.1% of the products belonged to the “Other products” group, 27.4% were “Bakery and confectionery products,” and 9% were “Dairy” products. The most frequent non-conformities included problems with the legibility of the nutrition facts table and inconsistencies in nutritional claims. The study allowed for the observation of an unequal distribution of these products in establishments and a high rate of labeling irregularities, aggravated by the lack of specific regulation for vegan and vegetarian products.

Keywords: Consumer; Information; Legislation; Label.

RESUMO

O aumento da demanda por produtos veganos e vegetarianos evidencia a necessidade de rotulagem padronizada, mas a falta de regulamentação específica no Brasil dificulta essa uniformização. Diante disso, objetivou-se elaborar um checklist para avaliar os rótulos de diferentes categorias de produtos veganos ou vegetarianos comercializados em Aracaju, Sergipe. O checklist proposto teve como base as legislações brasileiras de rotulagem, o mesmo era composto por 35 questões. Foram avaliados 587 rótulos de 197 marcas de produtos comercializados em hipermercados de diferentes bairros de Aracaju. As principais falhas identificadas envolveram inadequações na tabela de informação nutricional (36%) e na indicação do número de porções (18%). Foram visitados 18 hipermercados em 13 bairros da cidade, onde 50,1% dos produtos pertenciam ao grupo “Demais produtos”, 27,4% eram “Produtos de panificação e confeitaria” e 9% “Produtos Lácteos”. As inconformidades mais frequentes incluíram problemas na legibilidade da tabela nutricional e inconsistências nas alegações nutricionais. O estudo permitiu observar uma distribuição

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desigual desses produtos nos estabelecimentos e um alto índice de irregularidades na rotulagem, agravado pela falta de regulamentação específica para produtos veganos e vegetarianos.

Palavras-chave: *Consumidor, Informação, Legislação, Rótulo.*

INTRODUCTION

Adequate and healthy eating, as highlighted by the Brazilian Food Guide for the Brazilian Population, requires strategies that meet nutritional needs and promote conscious choices for consumers (Brasil, 2014). In this context, the labeling of food products, especially vegan and vegetarian ones, gains relevance due to the increase in demand for healthier, more sustainable, and ethical alternatives, motivated by environmental, health, and animal welfare concerns (Maldonado *et al.*, 2023).

Veganism is an ethical movement that aims to eliminate the exploitation and cruelty against animals in various spheres, including food, clothing, and cosmetics, with the objective of reducing animal suffering (Aureliano; Ferreira, 2020). Vegetarianism, in turn, refers to a dietary practice that excludes meat, fish, and poultry, without necessarily covering other aspects of consumption, such as clothing and cosmetics. Thus, while vegetarianism is restricted to diet, veganism represents a broader change in lifestyle (Sociedade Vegetariana Brasileira, 2023).

The vegan market in Brazil has shown significant growth, reflecting changes in eating behavior, with a significant portion of the population adopting vegetarian or vegan diets (Romão *et al.*, 2022a). In Brazil, a Datafolha Institute survey, conducted in December 2024 at the request of the Brazilian Vegetarian Society (SVB), identified that 7% of the Brazilian population declares themselves vegan (Sociedade Vegetariana Brasileira, 2025). The growing consumer interest in stopping meat consumption and adopting a plant-based diet has driven innovations in the food industry to meet this rising demand (Romão *et al.*, 2022b).

Simultaneously, food industries employ various marketing strategies, such as the use of attractive packaging, to entice and persuade consumers to choose their products (Maldonado, *et al.*; 2023). This dynamic highlights the need for a balance between marketing practices and the nutritional information available to the consumer (Maldonado, *et al.*; 2023).

Labeling corresponds to any inscription, caption, image, or graphic element present on the packaging of a food, whether printed, engraved, or pasted (Brasil, 2022). Besides its visual function, it plays a fundamental role in communication between the industry and consumers (Guimarães *et al.*, 2022). However, this information is often difficult to understand, which limits its potential as an effective tool for guiding food choices (Cowburn; Stockley, 2005; Miller; Cassady, 2015).

To address these limitations and encourage healthier diets, in line with World Health Organization (WHO) recommendations, several countries have adopted front-of-package nutritional labeling (World Health Organization, 2019). Different models have been implemented globally, focusing

on conveying clear and accessible information about the food composition (Templo, 2020). In Latin America, the octagonal warning labels, recently implemented in some countries, stand out (Ministerio de Salud de Chile, 2015). In Brazil, the adopted model was the black magnifying glass, which became mandatory in October 2022 to indicate high content of added sugars, saturated fats, and sodium (Brasil, 2020a).

However, despite the recent update of legislation for packaged products (2020), there are still shortcomings regarding its scope, especially concerning the labeling of vegan and vegetarian foods. This scenario compromises transparency and the right to information, which are essential for consumers with allergies, intolerances, and for choices aligned with nutritional, ethical, and environmental aspects (Plasek; Bryla, 2020). Initiatives like the Vegan Seal from the Brazilian Vegetarian Society aim to fill this need, but the creation of government regulation remains essential to ensure greater transparency and safety in the consumption of plant-based products (Aureliano; Ferreira, 2020).

The absence of specific legislation on vegan labeling is a challenge that impacts both consumers and the industry (Romão *et al.*, 2022b). The National Health Surveillance Agency (ANVISA) plays a crucial role in nutritional regulation but needs to advance in standardizing information for products that imitate foods of animal origin, ensuring clarity and safety for consumers (Zulato *et al.*, 2023).

Given the market growth and the increasing adherence to vegetarian and vegan diets, the implementation of specific labeling standards is necessary to guarantee the right to information and strengthen consumer trust (Hargreaves; Nakano; Zandonadi, 2020), contributing to more conscious food choices aligned with ethical values (Guimarães; Lima; Moraes, 2022). In this context, the present study aimed to elaborate a checklist based on the current food labeling legislation and, from it, evaluate the conformities and non-conformities present on the labels of different categories of vegetarian and vegan products, including “meat” alternatives, “dairy” alternatives, bakery products, confectionery, frozen desserts, products for special purposes, and other items available in hypermarkets in the municipality of Aracaju-Sergipe.

METHODOLOGY

STUDY DESIGN

The present study consisted of an observational, descriptive, quantitative, and qualitative analysis of the labels of vegan food products in the categories of “meat” and “dairy” analogs, bakery/confectionery products, frozen desserts, special-purpose foods, and other products available on the market in the municipality of Aracaju, Sergipe. The research was conducted from September 2023 to March 2024.

DEFINITION OF PRODUCT CATEGORIES

The selection of food categories analyzed was defined based on criteria related to consumption, substitution of animal-based products, nutritional purpose, and availability in the Brazilian market.

Thus, bakery and confectionery products, as well as frozen desserts, were included because they are widely consumed by the population and are part of the daily diet (Mordor Intelligence, 2024). Vegan “meat” and “dairy” products, formulated with the objective of imitating traditionally animal-based foods, such as milks, cheeses, yogurts, burgers, and processed meats, representing direct substitution alternatives, were also covered. Another category analyzed was products for special purposes, aimed at individuals who follow restrictive diets, such as the absence of gluten or lactose, or who require specific supplementation (Brasil, 1998). Finally, other vegan products found at the points of sale, which, although not fitting into the main categories, met the definition of vegan food and were considered relevant for the survey, were included. This division allowed for the organization and standardization of the analysis, in addition to providing a broader view of the market studied.

The classification of food groups was performed through the definition of the legislation pertinent to each food group, allowing not only to organize the data in a standardized way but also to expand the understanding of the diversity and evolution of the vegan market in Brazil.

CHECKLIST ELABORATION

For the elaboration of the checklist, an exploratory search was initially conducted on the current legislation established by ANVISA, as well as on the material provided on the website of the Brazilian Vegetarian Society (SVB). The construction of the instrument was based on the study by Krempser, Almeida, and Carvalho (2022), and was subsequently adapted by the four responsible researchers over a period of two months - the first dedicated to reading and analyzing the regulations, and the second to the systematization and elaboration of the checklist itself. The main objective of the instrument was to verify the presence or absence of the mandatory and optional elements required for the labeling of the analyzed product categories, in addition to assessing whether the information on the labels was arranged in conformity with the current legislation

The definition of food categories in this research was based on the guidelines of the National Health Surveillance Agency (ANVISA) Library, ensuring standardization and precision in the classification of the analyzed products. This standardization was fundamental to define which items should be sought in hypermarkets, ensuring consistency in sample selection and greater methodological rigor in obtaining results (ANVISA, 2020).

The following legislations were used for the development of the checklist: a) labeling of packaged foods (RDC No. 727, July 1, 2022, ANVISA) (Brasil, 2022); b) nutritional labeling of packaged foods (RDC No. 429, October 8, 2020, ANVISA) (Brasil, 2020b); c) technical requirements for declaration of nutritional labeling on packaged foods (Normative Instruction No. 75, October 8, 2020, ANVISA) (Brasil, 2020a); d) inclusion of declaration about a new formula on the labeling of products subject to health surveillance when their composition is altered (RDC No. 421, September 1, 2020, ANVISA) (Brasil, 2020c); e) Law 10.674, May 16, 2003, which mandates the information on the presence of gluten in commercialized food products (Brasil, 2003).

To categorize “vegan food,” the definition “products obtained or manufactured without the use of substances from vertebrate or invertebrate animals, including additives and technology aids, and that the latter have also not been generated with animal products” was used (Instituto Biodinâmico Certificações Ltda, 2020). Although not all packages feature a vegetarian or vegan identification seal, there is still no legislation that obliges manufacturers to identify the product in this way (Aureliano, Ferreira, 2020).

The information contained on the labels was collected with the aid of a multiple-choice checklist (AD: “adequate,” IN: “inadequate,” and NA: “not applicable”). If the mandatory information was present, it was identified as AD; however, if it was absent, or present in disagreement, it was identified as IN; and if the information was not applicable to that product, it was identified as NA. The instrument was composed of 35 questions distributed across 18 items referring to: a) the presence of words, signs, denominations, symbols, emblems, illustrations, or other graphic representations that could make the information false, incorrect, or insufficient, and that could mislead the consumer; b) presence of sales denomination; c) list of ingredients; d) warnings about allergenic foods; e) food additives; f) nutritional labeling; g) net content; h) origin identification; i) lot; j) expiration date; k) instructions for conservation and use; l) nutrition facts table present and in correct formatting; m) front-of-package labeling in necessary cases; n) declaration of quantities of energy value, carbohydrates, proteins, total fats, saturated fats, and trans fats, dietary fiber, and sodium; o) whether the presence of a nutrition facts table was voluntary for the type of food; p) if it had a nutritional claim, whether it was consistent with the composition criteria; q) the presence of the warning “contains gluten” or “does not contain gluten” and r) whether it is classified as a vegan food by the chosen definition.

SELECTION OF HYPERMARKETS IN ARACAJU-SE

A prior search was conducted via Google Maps® to identify how many hypermarkets existed in Aracaju/SE for the in loco visits (Krempser; Almeida; Carvalho, 2022). The research was carried out in hypermarkets due to the wide variety of products available in these establishments, allowing

for a more comprehensive analysis of the items marketed. The survey occurred by searching for businesses named “hypermarkets” (*hipermercados*) and “wholesalers” (*atacadistas*). Duplicate addresses provided by Google Maps® were excluded. Although the only inclusion criterion for the location was the city, as they are large establishments, not all regions have the structure to maintain them, which is why the distribution was concentrated in some neighborhoods of Aracaju.

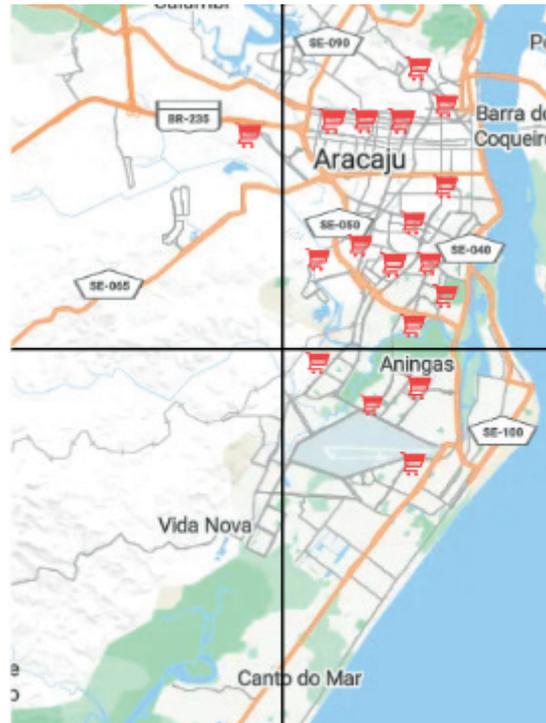
DATA COLLECTION, TABULATION, AND ANALYSIS

Visits to the hypermarkets were carried out by nutrition students, on different days (on average three times a week) and shifts. However, the effort was to concentrate them by region, so that the collection could be carried out more quickly. It is noteworthy that the hypermarkets were not previously notified about the visits, a measure adopted with the aim of avoiding possible biases or mistaken interpretations during data collection. Prior to going to the selected locations, the researchers were instructed to photograph all labels, so that no information was missing for their evaluation (Maldo-nado *et al.*, 2023). The photographs taken in loco were gathered and deposited in the Google Drive® cloud storage service. All products were categorized by food types, numbered, and registered in a Microsoft Excel 2019® spreadsheet. The same program was used to generate graphs and tables that could assist in the analysis and interpretation of the results. The results for the categorical variables were expressed in frequencies and percentages.

RESULTS

Nine hypermarket chains were identified, and a total of 18 hypermarkets were visited, which were distributed across 13 neighborhoods: Jardins (2), Novo Paraíso (2), José Conrado de Araújo (2), Grageru (2), Luzia (2), Atalaia (1), Farolândia (1), Jabotiana (1), Ponto Novo (1), Aeroporto (1), São José (1), Centro (1) and Bairro Industrial (1).

Figure 1 - Map of Aracaju-SE and identified hypermarkets.



Caption: Division by location of the hypermarkets found for the study.

Source: Google Maps.

ANALYSIS OF LABELS BY FOOD PRODUCT CATEGORY

A total of 587 products, distributed among 197 brands, were evaluated. A predominance of the “Other products” group is observed, with 294 items (50.1% of the total), followed by “Bakery and confectionery products” (161 items, 27.4%), and “Dairy” products (53 items, 9%). Groups such as “Frozen desserts” (15 items, 2.6%), “Products for special purposes” (37 items, 6.3%) and “Meat” products (27 items, 4.6%) showed less representation, highlighting specific limitations in the formulation and supply of these products in the market.

Table 1 presents a comprehensive analysis of the variety and availability of vegan/vegetarian products in hypermarkets in Aracaju, Sergipe (2024), focusing on seven food groups. The classification was carried out based on the specific legislation for each food category, offering an overview of the presence and diversity of products aimed at the public that adopts diets free of animal ingredients.

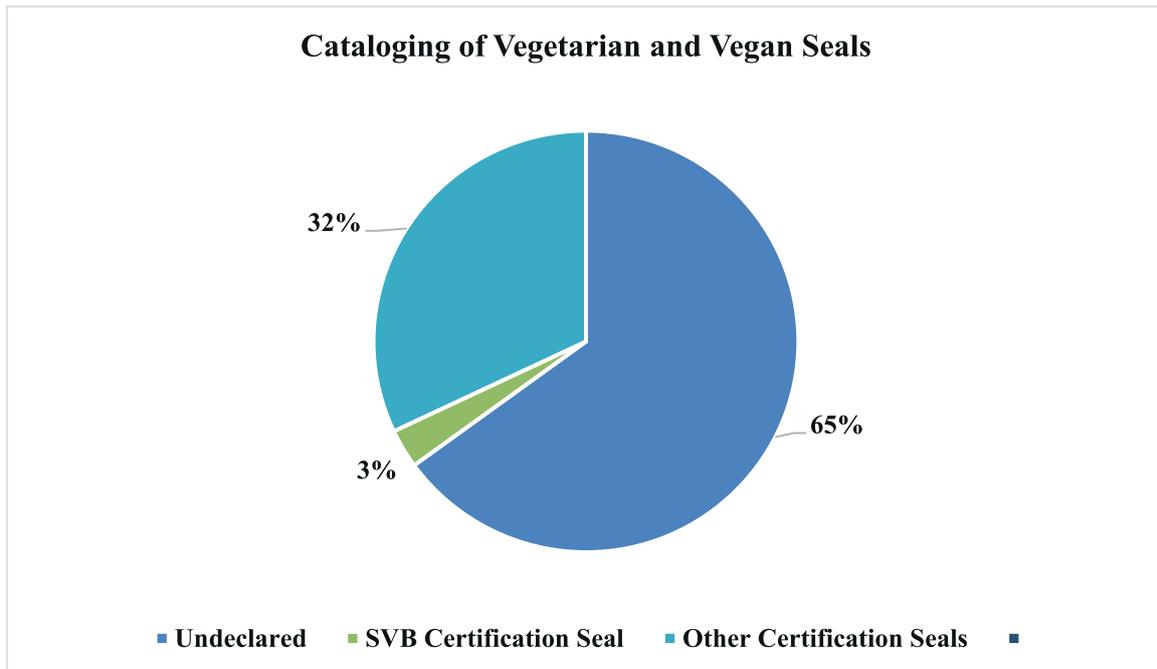
Table 1 - Evaluated food groups, types of food, quantity of foods, and quantity of brands evaluated of vegan/vegetarian products in hypermarkets in Aracaju, Sergipe (2024).

Evaluated Food Groups	Types of Food	Quantity of Foods	Quantity of Brands
“Dairy” Products	Vegetable “milk”; “Cheeses”	53	26
“Meat” Products	Texturized soy protein; “meats,” “vegetable meats”; breaded; meatballs and kibbeh;	27	13
Bakery and Confectionery Products	Flour (mix or not); rusks; biscuits; mix for preparing cake or dough or porridge; starch; oats; bread	161	54
Frozen desserts	Açaí sorbet; ice cream	15	6
Products for special purposes	Sweetener; gluten-free pasta; food supplement	37	9
Other products	Cereal bar; wheat or corn-based cereal, oats, and granola; gluten-containing pasta; “chips” and “snacks” type savory snacks; teas; coffee; juice; jelly; guava paste; fruit candy; paçoca, pé de moleque and other peanut-based products; chocolate milk powder; powdered chocolate and cocoa powder	294	89
Total evaluated		587	197

Source: Prepared by the authors.

Figure 2 illustrates the distribution of certification among vegetarian and vegan products, showing that 65% of the analyzed items do not have formal certification, while only 3% feature the Brazilian Vegetarian Society (SVB) seal. This data indicates low adherence to the official SVB seal and a predominance of products without any recognized certification.

Figure 2 - Cataloging of seals found on the evaluated products.



Caption: The number of vegan and vegetarian products was classified according to the presence or absence of a vegetarian or vegan seal and the type of seal.

Table 2 highlights challenges in the conformity of the labels of the evaluated vegan products.

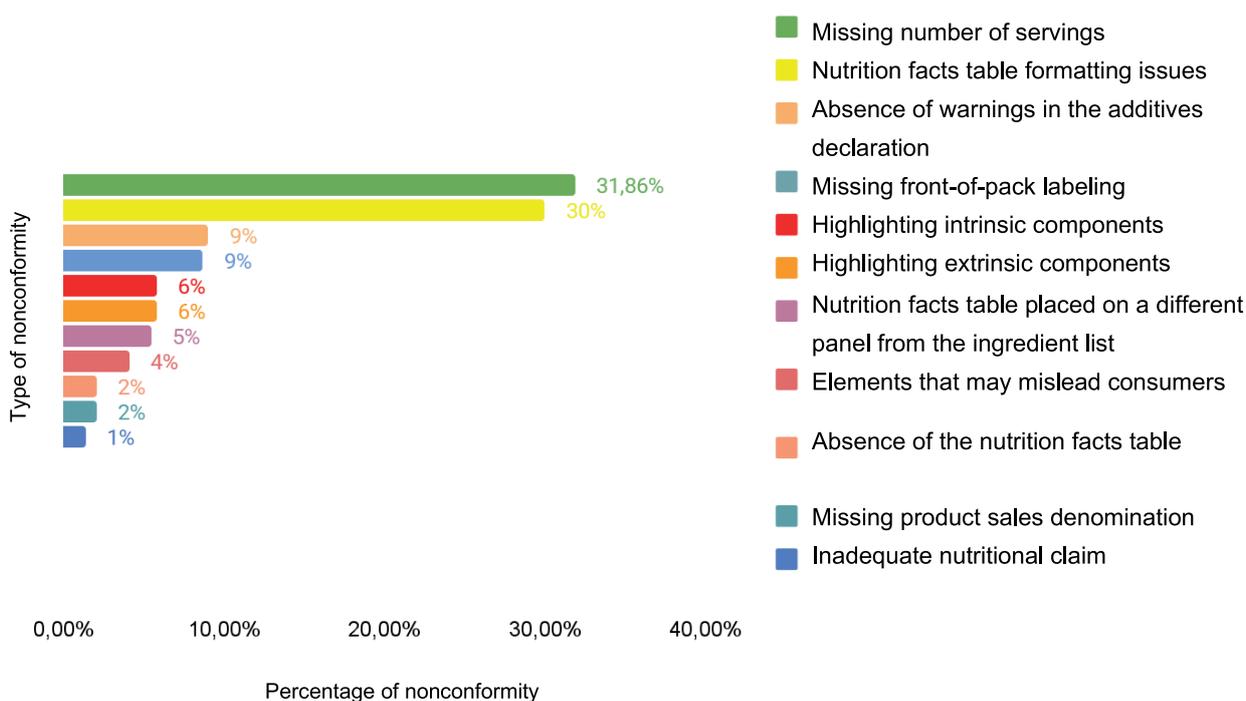
Table 2 - Percentage of conformity and non-conformity of labels by evaluated food groups in hypermarkets in the city of Aracaju, Sergipe (2024).

Evaluated Food Groups	Conformity	Non-Conformity
“Dairy” Products	54,72%	45,28%
“Meat” Products	70,37%	29,63%
Bakery and Confectionery Products	49,68%	50,31%
Frozen desserts	40%	60%
Products for special purposes	40,54%	59,46%
Other products	45,91%	54,08%

Source: Prepared by the authors.

As illustrated in Figure 3, the largest irregularity identified in vegan food labels is related to the nutrition facts table, representing 60 cases (36%).

Figure 3 - Percentage of non-conformity of evaluated labels.



Caption. Non-conformities identified in the labels of vegan foods in hypermarkets in the city of Aracaju, Sergipe, 2024..

Source: Prepared by the authors.

DISCUSSION

Gluten-free products are concentrated mainly in the “Products for special purposes” and “Bakery and confectionery” groups, including flour mixes, pastas, and certified gluten-free biscuits. Lactose-free products predominate in the “Dairy” Products group, which substitute milk derivatives

with extracts of vegetable ingredients such as soy, almonds, and oats. All analyzed products fall into the vegan category. However, the presence of more complex formulations, such as meat alternatives and milk-free ice creams (Table 1), is more limited in diversity and availability (Zulato *et al.*, 2022). Similar studies observed that highly processed products have reduced availability due to technical and economic challenges in large-scale production (Romao *et al.*, 2022a; Mordor Intelligence, 2024).

“Dairy” products, which include vegetable drinks and cheese substitutes, require advanced technologies for emulsification, stabilization, and fermentation to simulate the texture, flavor, and nutritional value of traditional dairy products (Zulato *et al.*, 2022). The absence of casein and lactose imposes sensory challenges, requiring natural additives that may limit the variety and availability of these products (Zulato *et al.*, 2022). Studies indicate that the development of vegetable cheeses and yogurts faces similar difficulties due to the need for effective stabilizers (Maldonado *et al.*, 2023).

“Meat” products, comprising texturized soy, vegetable burgers, meatballs, and kibbeh, depend on technologies such as extrusion and the use of isolated soy and pea proteins to replicate the fibrous texture of meat (Embrapa, 2022). High cost and the need for industrial equipment limit the diversity of these products in the market (Romao *et al.*, 2022b). According to Aureliano and Ferreira (2020), high costs and lack of incentives are common barriers to the expansion of the plant-based sector in Brazil.

Bakery and confectionery products face challenges in substituting eggs, milk, and derivatives with alternatives such as aquafaba, potato starch, and xanthan gum (Monteiro, 2019). Despite a high number of products, sensory variation and difficulty in standardizing recipes impact consumer acceptance (Maldonado *et al.*, 2023). Similar studies also indicate that sensory acceptance is a recurring challenge in vegan baking due to differences in texture and moisture (Hakim *et al.*, 2020).

Frozen desserts show lower representation (Table 1), suggesting challenges in formulation, especially in replacing milk fat with vegetable oils and alternative proteins (Boff, 2019). The low quantity available in the market highlights the technological and economic difficulties faced by manufacturers to make these products viable (Aureliano; Ferreira, 2020).

Products for special purposes include food supplements and gluten-free pastas (Table 1). The absence of collagen, gelatin, and milk derivatives requires alternative sources of proteins and thickeners, which can increase the cost and limit large-scale production (Adamante, 2021). Other products show great variety, including snacks, cereals, chocolates, and vegetable drinks. Many of these products are already naturally free of animal ingredients, requiring only minimal adjustments in formulation to cater to the vegan public. The high diversity suggests greater technological advancement and consumer acceptance (Mordor Intelligence, 2024).

The analysis shows that, although there is growth in the supply of vegan products, there is still an imbalance between food groups, reflecting technological, economic, and regulatory barriers in the formulation of these products (Aureliano; Ferreira, 2020). Categories that depend on specific

texture and functionality, such as meat and dairy alternatives, face greater challenges, while naturally vegan products have greater diversity (Zulato *et al.*, 2022). Food technology is crucial to expanding this market, covering everything from the selection of alternative ingredients, the development of specific industrial processes (extrusion, microencapsulation, and controlled fermentation) to the use of biotechnology to obtain ingredients closer to the originals (Adamante, 2021).

However, the limited availability of innovative ingredients in Brazil, the high production cost, and the lack of incentives for the plant-based food industry are still obstacles to increasing the diversity of these products (Aureliano; Ferreira, 2020). The implementation of clear regulations and consistent labeling practices can contribute to consumer confidence and drive the sustainable growth of this sector (Maldonado *et al.*, 2023; Hakim *et al.*, 2020; Duran *et al.*, 2019).

Vegan certification plays an essential role in standardizing and identifying products suitable for consumers who follow this diet. In Brazil, the National Health Surveillance Agency (ANVISA) is the body responsible for regulating food; however, there is no specific legislation to standardize vegetarian and vegan products. Thus, different organizations establish their own criteria for certification, which can result in a diversity of seals and make understanding difficult for consumers. According to Alves and Varella (2016), the absence of state regulation for vegan certifications contributes to this heterogeneity, making product choice more challenging for the target audience.

As discussed by Aureliano and Ferreira (2020), veganism seeks to eliminate all forms of animal exploitation, including transparency in product labeling. However, the high percentage of products without certification may make it difficult to identify foods compatible with this philosophy, making consumer choice more complex. Furthermore, Alves and Varella (2016) highlight that vegan certification is frequently granted upon payment, without mandatory state regulation, which may contribute to the predominance of non-standardized seals and the absence of certification in a large part of the products (Alves; Varella, 2016).

Thus, adherence to the official SVB seal becomes relevant to ensure the reliability of information and ingredient traceability (Romão *et al.*, 2022b). The low representativeness of this seal, as evidenced in Figure 2, suggests the need for more rigorous policies to encourage certification and, consequently, improve transparency in the market for products aimed at the vegetarian and vegan public (Aureliano; Ferreira, 2020). This scenario reinforces the importance of stricter regulations to ensure clear and reliable information for consumers, enabling more conscious choices aligned with the principles of vegetarianism and veganism.

“Meat” products showed the highest conformity (70.37%), possibly due to more consolidated regulation for vegetable alternatives to meat (Table 2). Similar results were reported by Duran *et al.* (2019), indicating that compliance with established standards can facilitate the commercialization of these products.

“Products for special purposes” had the highest non-conformity rate (59.46%) (Table 2), which may be related to the rigorous requirements for labeling supplements and gluten-free products,

which require detailed specifications about ingredients and potential allergens. According to Aureliano & Ferreira (2020), detailed specifications about ingredients and potential allergens make conformity more challenging.

“Dairy” products achieved an intermediate conformity (54.72%) (Table 2), indicating challenges in the correct declaration of ingredients used to replace dairy components, such as vegetable proteins and emulsifiers (Zulato *et al.*, 2022). “Bakery and confectionery products” showed a similar index (49.68%), reflecting difficulties in labeling complex mixes that exclude eggs, milk, and gluten, demanding the specification of thickeners, stabilizers, and structuring agents (Monteiro, 2019). “Frozen desserts” had one of the lowest conformity percentages (40%), which can be attributed to the formulation highly dependent on alternative emulsifiers and stabilizers, whose labeling requires precision to avoid undue claims (Boff, 2019).

The new packaged food labeling legislations impose greater transparency in the identification of ingredients and allergens, demonstrating the need for specific adaptations for vegan products (Aureliano; Ferreira, 2020). The high non-conformity in some categories suggests that the industry still faces difficulties in adapting to the new standards, especially in products that replace animal-based ingredients with more complex technological compounds (Zulato *et al.*, 2022). The correct framing of nutritional and functional claims also represents a challenge, as many vegan products seek sensory and nutritional equivalence with their conventional versions, requiring detailed and standardized labeling (Maldonado *et al.*, 2023).

Thus, label conformity is directly related to the degree of formulation complexity and regulatory requirements, making the improvement of labeling practices essential to ensure consumer confidence and food and nutritional security (Aureliano; Ferreira, 2020). Strengthening the guidelines for vegan products and adapting the industry to the new requirements are fundamental to reducing non-conformity rates and promoting greater transparency in this expanding market.

As illustrated in Figure 3, the largest irregularity identified in vegan food labels is related to the nutrition facts table, representing 60 cases (36%). The main failures include problems with formatting and incomplete information, such as the absence of the number of servings per package (31.86%, 53 cases) and difficulties with the legibility of the table, contradicting RDC 429/2020 (Brasil, 2020b) and IN 75/2020 (Brasil, 2020a). This inadequacy hinders consumer understanding of the nutritional value per serving, making informed food choices difficult and compromising the necessary transparency in labeling (Felipetto, 2022). For vegan and vegetarian consumers, this information is even more essential, as it helps monitor critical nutrients such as protein and iron, fundamental for a balanced diet (Romão *et al.*, 2022b).

Another significant problem is the absence of warnings in the declaration of additives (7%, 12 cases) (Figure 3). This lack of transparency directly affects vegan and vegetarian consumers, who prioritize products without animal-derived additives (Monteiro and Tiecher, 2020). RDC 727/2022 (Brasil, 2022) requires labels to correctly inform the presence of additives, ensuring that the consumer is aware

of the components used in the food. However, the data indicate that this requirement is not yet fully met by manufacturers. Previous studies also indicate that the labeling of dairy products, with and without lactose, often presents inadequacies in the nutrition facts table and the list of ingredients, suggesting that these problems are recurrent in technically challenging food categories (Zulato *et al.*, 2023).

Furthermore, the missing front-of-package labeling (9%, 15 cases) and the lack of prominence for intrinsic components (6%, 10 cases) demonstrate the difficulties companies face in clearly communicating essential product information (Figure 3). These aspects are addressed by RDC 429/2020, which establishes rules to facilitate consumer understanding of the information. The absence of front-of-package labeling can make the quick identification of important food attributes difficult, directly impacting the purchase decision (Bandeira *et al.*, 2021). The lack of clarity in labeling compromises consumer trust and can lead to errors regarding product characteristics, such as the presence of animal-derived ingredients or potentially harmful substances (Aureliano; Ferreira, 2020).

The formulation of vegan products directly influences these problems, as many of these foods are highly processed to imitate sensory characteristics of animal-based products, which leads to the use of a wide variety of additives, thickeners, stabilizers, and flavorings (Romão *et al.*, 2022b). This high degree of processing reinforces the importance of transparency in labeling, as vegan consumers seek products that meet not only their nutritional needs but also their ethical and environmental values (Romão *et al.*, 2022a). The Brazilian Food Guide for the Brazilian Population (Brasil, 2014) classifies these foods within the group of processed and ultra-processed foods, highlighting that these products frequently feature complex formulations, which may include substances that are difficult for the average consumer to understand (Brasil, 2014).

Based on the data presented, it is possible to observe that some regulations are better met than others. RDC 429/2020 and IN 75/2020, which deal with front-of-package labeling and technical labeling requirements, are partially met, but there are still failures in table presentation and information legibility. However, RDC 727/2022, which regulates nutritional claims, shows one of the lowest levels of conformity, especially regarding transparency about additives. On the other hand, RDC 421/2020, which addresses the declaration of New Formula, was not directly mentioned in the main non-conformities, suggesting that companies may be following this standard better compared to the others.

CONCLUSION

The elaboration of the form enabled a critical analysis of the labels of vegan and vegetarian products available in hypermarkets, allowing for the identification of inequalities in the distribution of these products and a high number of non-conformities in the analyzed labels. The main inadequacies were observed in the formatting of the nutrition facts table and the indication of the number of servings. The findings emphasize the need for standardization of information and indicate that the

absence of specific regulation for these products may contribute to normative failures, directly impacting the clarity and reliability of the information provided to consumers.

REFERÊNCIAS

Adamante, Djonathan *et al.* **Utilização de mixes de ingredientes não alérgenos em substituição à proteína de soja em hambúrgueres.** In: CONGRESSO DE CIÊNCIAS FARMACÊUTICAS DO MERCOSUL, 8., 2021. Anais [...]. Disponível em: <https://www.even3.com.br/anais/8cosimp/288875-utilizacao-de-mixes-de-ingredientes-nao-alergenicos-em-substituicao-a-proteina-de-soja-em-hamburgueres/>.

Alves, F. G.; Varella, M. H. L. (2016). **Regulamentação da Rotulagem dos Alimentos Vegetarianos sob a Perspectiva do Código de Defesa do Consumidor.** Cadernos do Programa de Pós-Graduação em Direito-PPGDir. /UFRGS, 11.

Aureliano, P. C.; Ferreira, S. B. T. **Rotulagem de produtos vegetarianos estritos: uma avaliação frente à legislação brasileira.** Trabalho de conclusão de curso (Monografia), Bacharel em Nutrição, Faculdade Pernambucana de Saúde, Recife, 2020.

Bandeira, L. M.; *et al.* **Desempenho e percepção sobre modelos de rotulagem nutricional frontal no Brasil.** Revista de Saúde Pública, São Paulo, Brasil, v. 55, p. 19, 2021. DOI: <https://doi.org/10.11606/s1518-8787.2021055002395>.

Boff, C. C; *et al.* **Desenvolvimento de sorvete de chocolate utilizando fibra de casca de laranja como substituto de gordura.** Ciência Rural, v. 49, n. 3, 2019. Disponível em: <https://www.scielo.br/j/cr/a/4N4wk7DQDbYBDJSCtjn5Sdj>.

Brasil. **Agência Nacional de Vigilância Sanitária (ANVISA). Instrução Normativa - IN nº 75, de 8 de outubro de 2020a.** Requisitos técnicos para declaração da rotulagem nos alimentos embalados. Diário Oficial da União, nº 195, de 09 de outubro de 2020a.

Brasil. **Agência Nacional de Vigilância Sanitária (ANVISA). RDC nº 429, de 08 de outubro de 2020.** Dispõe sobre a rotulagem nutricional dos alimentos embalados. Diário Oficial da União, nº 195, de 09 de outubro de 2020.

Brasil. **Agência Nacional de Vigilância Sanitária (ANVISA). RDC nº 421, de 1º de setembro de 2020c.** Dispõe sobre a inclusão de declaração sobre nova fórmula na rotulagem de produtos sujeitos à vigilância sanitária quando da alteração de sua composição. Diário Oficial da União, nº 170, de 03 de setembro de 2020c.

Brasil. **Agência Nacional de Vigilância Sanitária (ANVISA). RDC nº 429, de 08 de outubro de 2020b.** Dispõe sobre a rotulagem nutricional dos alimentos embalados. Diário Oficial da União, nº 195, de 09 de outubro de 2020b.

Brasil. **Agência Nacional de Vigilância Sanitária (ANVISA). RDC nº 727, de 1º de julho de 2022.** Rotulagem de alimentos embalados. Diário Oficial da União, nº 126, de 06 de julho de 2022.

Brasil. **Lei Nº 10.674, de 16 de maio de 2003.** Obriga a que os produtos alimentícios comercializados informem sobre a presença de glúten, como medida preventiva e de controle da doença celíaca. Brasília, DF: Diário Oficial da União, 16 de maio de 2003.

Brasil. Ministério da Saúde. Agência Nacional de Vigilância Sanitária - ANVISA. **Resolução RDC nº 259, de 20 de setembro de 2002.** Regulamento Técnico sobre Rotulagem de Alimentos Embalados. Diário Oficial da República Federativa do Brasil, Brasília, 23 set. 2002. Disponível em: <http://portal.anvisa.gov.br/legislacao#/visualizar/26993>. Acesso em: 17 nov. 2023.

Brasil. Ministério da Saúde. Secretaria de Vigilância Sanitária. **Portaria nº 29, de 13 de janeiro de 1998.** Aprova o Regulamento Técnico referente a Alimentos para Fins Especiais. Brasília, DF: Diário Oficial da União, 13 jan. 1998.

Bryla, P. **Who Reads Food Labels? Selected Predictors of Consumer Interest in Front-of-Package and Back-of-Package Labels during and after the Purchase.** Nutrients, v. 12, n. 2605, 2020.

Cowburn G, Stockley L. **Compreensão do consumidor e uso da rotulagem nutricional: uma revisão sistemática.** Saúde Pública Nutr. (2005) 8:21-8. DOI: 10.1079/PHN2005666

Duran, A.C.; *et al.* **Conflicting Messages on Food and Beverage Packages: Front-of-Package Nutritional Labeling, Health and Nutrition Claim in Brazil.** Nutrients, 11, n. 12, 2967, 5 dez. 2019.

EMBRAPA AGROINDÚSTRIA DE ALIMENTOS. **Tecnologias de texturização de proteínas vegetais.** Rio de Janeiro: Embrapa Agroindústria de Alimentos, 2022. Disponível em: <https://www.infoteca.cnptia.embrapa.br/infoteca/bitstream/doc/1141928/1/CP-01-22-DOC-144-miolo-texturizacao-proteinas-corrigido.pdf>. Acesso em: 28 mar. 2025.

Felipetto N.; *et al.* **Brazilian Consumers' Perception towards Food Labeling Models Accompanying Self-Service Foods.** Alimentos. 2022; 11(6):838. <https://doi.org/10.3390/foods11060838>

Guimarães, V. de O.; Lima, H. C. F. M.; Morais, A. R. F. **Avaliação das rotulagens de alimentos frente à legislação vigente e do uso de alegações não regulamentadas.** Revista do Instituto Adolfo Lutz, [S. l.], v. 81, p. 1-18, e39118, 2022. Disponível em: <https://periodicos.saude.sp.gov.br/RIAL/article/view/39118>. Acesso em: 12 jul. 2024.

Hakim, M.P.; *et al.* **The mandatory labeling of genetically modified foods in Brazil: Consumer's knowledge, trust, and risk perception.** Food Research International, v. 132, 109053. jun. 2020. DOI: <https://doi.org/10.1016/j.foodres.2020.109053>.

Hargreaves, S. M.; Nakano, E. Y.; Zandonadi, R. P. **Brazilian Vegetarian Population-Influence of Type of Diet, Motivation and Sociodemographic Variables on Quality of Life Measured by Specific Tool (VEGQOL).** Nutrients, v. 12, n. 5, p. 1406, 14 maio 2020. Disponível em: <https://doi.org/10.3390/nu12051406>.

IDB CERTIFICAÇÕES Ltda. **Diretriz IDB Ingredientes Naturais Veganos.** 1ª ed. Botucatu, São Paulo. 2020.

Krempser, M. A. de P.; Almeida A, K. L. N.; De Carvalho, M. G. **Azeite de oliva: avaliação do rótulo e pesquisa com consumidores / Olive oil: label evaluation and consumer survey.** Brazilian Journal of Health Review, [S. l.], v. 5, n. 1, p. 3663-3682, 23 fev. 2022. DOI: 10.34119/bjhrv5n1-316.

Maldonado, L. A.; *et al.* **Estratégias de comunicação mercadológica em rótulos de alimentos consumidos por crianças.** Revista de Saúde Pública, São Paulo, v. 57, n. 1, p. 92, 2023. DOI: 10.11606/s1518-8787.2023057004614. Acesso em: 30 jul. 2024.

Miller LMS, Cassady DL. **Os efeitos do conhecimento nutricional no uso do rótulo dos alimentos: uma revisão da literatura.** Appetite. (2015) 92:207-216. DOI: 10.1016/j.appet.2015.05.029

Ministério da Saúde - MS. **Guia Alimentar para a População Brasileira.** 2ª ed. Brasília: MS; 2014.

Ministerio de Salud Chile. **Decreto N° 13 de 16 Abril 2015 que modifica Decreto Supremo N° 977, de 1966, Reglamento Sanitario de los Alimentos, Diario Oficial de la Republica de Chile,** 26 de Junio de 2015, I N° 41.193.

Monteiro, E. R.; Tiecher, A. **Avaliação da rotulagem de produtos lácteos isentos de lactose.** Revista do Instituto de Laticínios Cândido Tostes, [S.l.], v. 77, n. 2, p. 92-102, dez. 2022. ISSN 2238-6416. Disponível em: <https://rilct.emnuvens.com.br/rilct/article/view/891>. Acesso em: 14 ago. 2024. DOI: 10.14295/2238-6416.v77i2.891.

Monteiro, R. P. B. **Desenvolvimento de técnicas de pastelaria para a produção de produtos isentos de leite, ovos e glúten.** 2019. Dissertação (Mestrado em Qualidade e Segurança Alimentar) - Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Lisboa, 2019.

Montera, V. S. P., *et al.* **Informação sobre aditivos alimentares nos rótulos de alimentos no Brasil: análise crítica.** Rev Saude Publica. 2023;57:2. <https://doi.org/10.11606/s1518-8787.2023057004371>.

Mordor Intelligence. **Tamanho do Mercado de panificação e análise de ações Tendências e previsões de crescimento (2024- 2029)**. Disponível em: <https://www.mordorintelligence.com/pt/industry-reports/bakery-products-market>. Acesso em: 15 ago. 2024.

Organização Mundial da Saúde. **Princípios Orientadores e Manual-Quadro para a Rotulagem na Frente da Embalagem para a Promoção de uma Dieta Saudável. (2019)**. Disponível em: [https://apps.who.int/nutrition/publications/policies/guidingprinciples-labelling-promoting-healthydiet.pdf?ua\\$=\\$~1](https://apps.who.int/nutrition/publications/policies/guidingprinciples-labelling-promoting-healthydiet.pdf?ua$=$~1). Acesso em: 20 ago. 2025).

Plasek, B.; Lakner, Z.; Temesi, A. **Fatores que influenciam a salubridade percebida dos alimentos - revisão**. Nutrientes, v. 12, n. 1881, 2020.

Romão, B. *et al* (a). **Vegan milk and egg alternatives commercialized in Brazil: A study of the nutritional composition and main ingredients**. Front. Public Health, v. 10, p. 964734. DOI: <https://doi.org/10.3389/fpubh.2022.964734>.

Romão, B. *et al* (b). **Are vegan alternatives to meat products healthy? A study on nutrients and main ingredients of products commercialized in Brazil**. Front. Public Health, v. 10, p. 900598. DOI: [10.3389/fpubh.2022.900598](https://doi.org/10.3389/fpubh.2022.900598).

Secretaría de Economía. **MODIFICACIÓN a la norma oficial Mexicana NOM-051-SCFI/SSA1-2010, especificaciones generales de etiquetado para alimentos y bebidas no alcohólicas preenvasados-información comercial y sanitaria**, publicada em 5 de Abril de 2010. Diálogo Oficial de la Federación. (2020) Disponível online em: http://dof.gob.mx/2020/SEECO/NOM_051.pdf. Acesso em: 28 ago. 2025.

Sociedade Vegetariana Brasileira. **Mercado dos produtos veganos**. 2023. Disponível em: <https://svb.org.br/vegetarianismo-e-veganismo/mercado-vegano/>. Acesso em: 30 jul. 2024.

Sociedade Vegetariana Brasileira. **Pesquisa Datafolha revela que 7% dos brasileiros se consideram veganos**. 2025. Disponível em: <https://svb.org.br/pesquisa-datafolha-revela-que-7-dos-brasileiros-se-consideram-veganos/>. Acesso em: 23 jul. 2025.

Sociedade Vegetariana Brasileira. **Selo vegano**. 2020. Disponível em: <https://svb.org.br/selovegano/>. Acesso em: 24 jul. 2024.

Templo NJ. **Rótulos de alimentos na frente da embalagem: uma revisão narrativa**. Appetite. (2020) 144:104485. DOI: [10.1016/j.appet.2019.104485](https://doi.org/10.1016/j.appet.2019.104485)

Tomaz, L. A. *et al*. **From the most to the least flexible nutritional profile: Classification of foods marketed in Brazil according to the Brazilian and Mexican models**. Frontiers in Nutrition, v. 9, p. 919582, 20 set. 2022. DOI: [10.3389/fnut.2022.919582](https://doi.org/10.3389/fnut.2022.919582). PMID: 36204372.

Zulato, G.; Adami, L. M. S.; Dutra, M. B. L. **Rótulos de produtos lácteos: avaliação da conformidade com a legislação vigente.** v. 15, n. 1. 15^a Jornada Científica e Tecnológica do Instituto Federal do Sul de Minas, 2023.

APPENDICES

APÊNDICE A - CHECK LIST UTILIZADO PARA COLETA DE DADOS



**UNIVERSIDADE FEDERAL DE SERGIPE
CENTRO DE CIÊNCIAS BIOLÓGICAS E DA SAÚDE
DEPARTAMENTO DE NUTRIÇÃO**

CHECK LIST DE ROTULAGEM - PRODUTOS VEGANOS

Resolução RDC nº 727, de 1º de julho de 2022

Resolução RDC nº 429, de 08 de outubro de 2020

Instrução Normativa nº 75, de 8 de outubro de 2020

Lei 10.674, de 16 de maio de 2003

Sociedade Vegetariana Brasileira

Estabelecimento da Coleta: _____

Denominação do Produto: _____

Prazo de Validade: _____ Tipo de Embalagem: _____

Data da Coleta: ____ / ____ / ____

Resolução RDC nº 727						
Não é permitido constar na rotulagem	Adequado	Inadequado	Não se aplica	Grupo/ tipo	OBS	Legislação correspondente
1. A rotulagem contém vocábulos, sinais, denominações, símbolos, emblemas, ilustrações ou outras representações gráficas que possam tornar a informação falsa, incorreta, insuficiente, ou que possa induzir o consumidor a equívoco, erro, confusão ou engano em relação à verdadeira natureza, composição, procedência, tipo, qualidade, quantidade, validade, rendimento ou forma de uso do alimento?						Art. 4º Item I RDC Nº 727/22
2. Atribui efeitos ou propriedades que não possuam ou que não possam ser demonstradas?						Art. 4º Item II RDC Nº 727/22
3. Destaca a presença ou a ausência de componentes que sejam intrínsecos ou próprios de alimentos de igual natureza, exceto nos casos previstos em normas específicas?						Art. 4º Item III RDC Nº 727/22
4. Ressalta qualidades que possam induzir a engano com relação a reais ou supostas propriedades terapêuticas que alguns componentes ou ingredientes tenham ou possam ter quando consumidos em quantidades diferentes daquelas que se encontram no alimento ou quando consumidos sob forma farmacêutica?						Art. 4º Item VI RDC Nº 727/22
5. Indica que o alimento possui propriedades medicinais ou terapêuticas; e aconselha seu consumo como estimulante, para melhorar a saúde, para prevenir doenças ou com ação curativa?						Art. 4º Item VII e VIII RDC Nº 727/22

Obrigatório consultar na rotulagem	Adequado	Inadequado	Não se aplica	Grupo/ tipo	OBS	Legislação correspondente
6. Possui Denominação de venda?						Art. 7º Item I RDC Nº 727/22
7. Possui lista de ingredientes						Art. 7º Item II RDC Nº 727/22
8. Possui advertências sobre os principais alimentos que causam alergias alimentares?						Art. 7º Item III RDC Nº 727/22
9. Possui advertências relacionadas ao uso de aditivos alimentares?						Art. 7º Item VI RDC Nº 727/22
10. Os aditivos alimentares estão declarados na lista de ingredientes após os demais ingredientes, por meio da função tecnológica principal do aditivo no alimento seguida de, pelo menos, uma das seguintes informações: nome completo do aditivo alimentar; ou número do aditivo alimentar no Sistema Internacional de Numeração do Codex Alimentarius(INS)?						RDC Nº 727/22 Art.12 Item I e II
11. Possui Rotulagem nutricional?						Art. 7º Item VII RDC Nº 727/22
12. Possui conteúdo líquido?						Art. 7º Item VIII RDC Nº 727/22
13. Possui identificação da origem?						Art. 7º Item IX RDC Nº 727/22
14. Possui identificação do lote?						Art. 7º Item X RDC Nº 727/22
15. Possui prazo de validade?						Art. 7º Item XI RDC Nº 727/22
16. Possui Instruções de conservação, preparo e uso do alimento, quando necessário; e Outras informações exigidas por normas específicas?						Art. 7º Item XII e XIII RDC Nº 727/22

17. No caso dos alimentos congelados é indicado que o prazo de validade varia segundo a temperatura de conservação?						Art. 32° Item I RDC N° 727/22
Resolução RDC N° 429	Adequado	Inadequado	Não se aplica	Grupo/ tipo	OBS	Legislação correspondente
18. Há presença de tabela de informação nutricional com a declaração das quantidades de valor energético e de todos nutrientes e substâncias bioativas adicionados aos produtos?				Alimentos para fins especiais		RDC N° 429/2020 Inciso 2 Item XIII
19. Consta tabela de informação nutricional na rotulagem do produto?						Cap.II art. 4° N°429/2020
20. A formatação da tabela de informação nutricional está adequada?						RDC N° 429 Art. 16 Itens 1,2,3,4 e 5
21. Há declaração do número de porções contidas na embalagem do alimento declarado na tabela de informação nutricional?						RDC N°429/2020 Art.10
22. Há a declaração da rotulagem nutricional frontal nos rótulos dos alimentos cujas quantidades de açúcares adicionados, gorduras saturadas ou sódio sejam iguais ou superiores aos limites definidos?						RDC N°429/2020 Art. 18
23. No caso do produto possuir rotulagem frontal, a formatação está adequada?						RDC N° 429/2020 Art. 21 Itens I, II e III
24. A declaração da tabela de informação nutricional está localizada em uma única superfície contínua da embalagem e no mesmo painel da lista de ingredientes?						RDC N° 429/2020 Art.14
25. A tabela de informação nutricional contém declaração das quantidades de valor energético?						RDC N° 429/2020 Cap. II Art. 5° Item 1
26. Contém declaração da quantidade carboidratos?						RDC N° 429/2020 Cap. II Art. 5° Item 2

27. A tabela de informação nutricional contém declaração da quantidade de proteínas?						RDC N° 429/2020 Cap. II Art. 5° Item 5
28. A tabela de informação nutricional contém declaração das quantidades gorduras totais, saturadas e trans?						RDC N° 429/2020 Cap. II Art. 5° Item 6, 7 e 8
29. A tabela de informação nutricional contém declaração da quantidade de fibra alimentar?						RDC N° 429/2020 Cap. II Art. 5° Item 9
30. A tabela de informação nutricional contém declaração da quantidade de sódio?						RDC N° 429/2020 Cap. II Art. 5° Item 10
Instrução Normativa N° 75	Sim	Não	Não se aplica	Grupo/tipo	OBS	Legislação Correspondente
31. O alimento se enquadra na lista, cujo a presença da tabela nutricional na rotulagem é voluntária?						IN N° 75 Anexo I
32. O alimento possui alegação nutricional que condiz com os critérios de composição?						IN N° 75 Anexo XX
Instrução Normativa N° 75 Anexo IX	Vertical	Horizontal	Linear	Vertical Quebrada	Horizontal Quebrado	Agregada
33. Qual o modelo da tabela de informação nutricional?						
Lei 10.674, 2003	Adequado	Inadequado	Não se aplica	Grupo/tipo	OBS	Legislação Correspondente
34. A rotulagem possui advertência de Glúten, “contém Glúten” ou “não contém Glúten”?						Lei 10.674/ 2003 Art. 1°
Sociedade Brasileira Vegetariana	Adequado	Inadequado	Não se aplica	Grupo/tipo	OBS	Legislação Correspondente
35. Os produtos foram obtidos ou fabricados sem o uso de substancias de animais vertebrados ou invertebrados inclusive aditivos e adjuvantes de tecnologia, e que estes últimos também não tenham sido gerados com produtos animais?						Diretriz IBD Ingredientes Vegano