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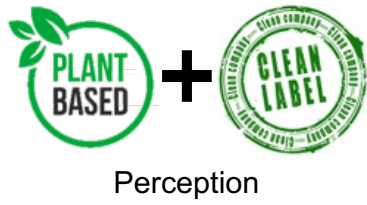
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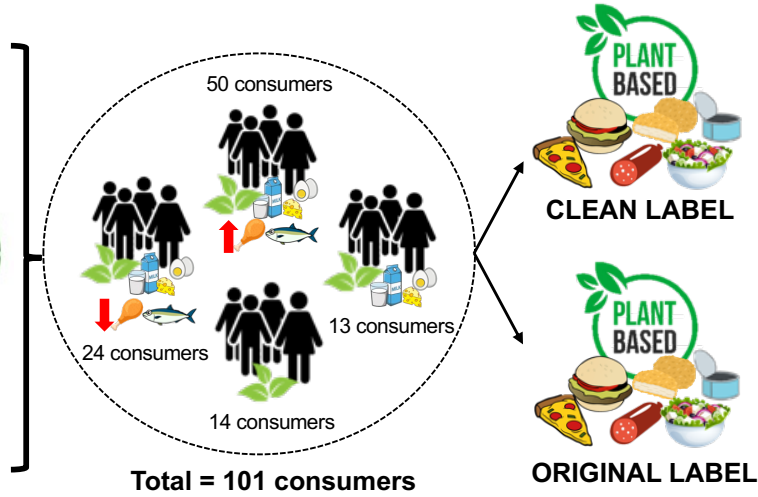
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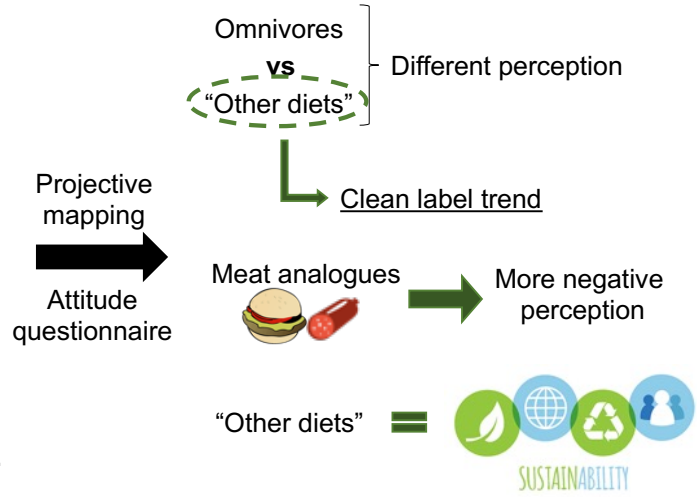
OBJETIVE



METHODOLOGY



RESULTS



Highlights

- Study has focused on clean label plant-based products.
- Participants with different diets (omnivorous, flexitarian, vegetarian and vegan) were included.
- Consumer diets affect consumer perception for clean label plant-based food.
- Consumers' attitudes with different diets were discussed.
- Future research recommendations were suggested.

1 **Green or Clean? Perception of clean label plant-based products by**
2 **omnivorous, vegan, vegetarian and flexitarian consumers.**

3

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14

15 **Abstract**

16 Consumers are increasingly interested in health and sustainability aspects of
17 their diets. Meat reduction diets have gained popularity with some consumers,
18 leading to an increase in plant-based products in the markets. Additionally, the
19 demand for more natural and healthier products is associated with the clean label
20 trend. But how these two trends relate to each other, has not yet been widely
21 investigated. The aim of the present research was to explore the perception of
22 different consumers (vegans, vegetarians, flexitarians and omnivores), towards
23 clean label, plant-based products in order to better understand their motivations
24 and attitudes. Consumers in Spain, followers of these four diets, participated in a
25 projective mapping task - categorisation of twenty plant-based products (ten

26 clean label and ten original products) - and answered a health and sustainability
27 attitudes survey. The results showed that according to the diet followed by the
28 consumers, they categorised and perceived the products differently, in line with
29 their attitudes. Meat-reducer and avoider consumers paid more attention to
30 quality and health and presented a greater concern for animal welfare and
31 sustainability. Also, they focused on the clean label status for product
32 categorization, while omnivores did not separate between original and clean label
33 products. The present study shows a first exploration of how consumers with
34 different relation to meat (frequent consumption-reduction-avoidance) perceive
35 clean label plant-based products, in relation to their attitudes to health and
36 sustainability, a building block on the way to support consumers in the transition
37 to healthier, more sustainable diets.

38

39 **Keywords:** plant-based, clean label, sustainability, Projective Mapping,
40 omnivorous, vegan, vegetarian, flexitarian

41

42

43 **1. INTRODUCTION**

44 In recent years, meat reduction diets have gained popularity with some
45 consumers striving to shift to more sustainable and healthier diets. Depending on
46 the levels of strictness and adherence to dietary meat restriction there are
47 different diets (Eveleigh, Coneyworth, Avery & Welham, 2020). Typically, vegans
48 do not consume any animal-derived products, vegetarians exclude meat and fish
49 but may consume milk and eggs and flexitarians who are semi-vegetarian
50 because do not exclude meat products (red meat or other meats) but limit their
51 consumption (Derbyshire, 2017; Rosenfeld, Rothgerber & Tomiyama, 2020).
52 Lantern Study (2019) indicated an increase in Spain of 27% in this type of diets,
53 with 0.5% vegans, 1.5% vegetarians and 7.9% flexitarians, being these
54 percentages lower than in other places in Europe such as Germany and England.
55 Despite these data, 87.8% of the population declares itself omnivores (Lantern
56 Study, 2019). The health benefits of limiting or excluding meat and meat derived
57 products include a lower risk of overweight and obesity, type 2 diabetes, coronary
58 heart disease and certain cancers such as colorectal cancer (World Health
59 Organization, 2015; Malek & Umberger, 2021). Furthermore, following these
60 diets also has environmental benefits such as the reduction of greenhouse gas
61 emissions (GHG) and land use demand (Tilman & Clark, 2014; Rabès et al.,
62 2020).

63 This reduction in meat consumption entails having to increase the intake of plant-
64 based proteins and fresh fruits and vegetables (Kumar, 2016), thus, this
65 consumption is replaced by plant-based meat analogues. Aschemann-Witzel
66 (2020) indicated that the term “plant-based” is used to describe a recent
67 consumer trend of avoiding animal-based products and choosing plant-based

68 alternatives instead, reducing the amount of animal-based foods in diets; so it
69 can be understood in two ways, excluding or reducing animal-based products.
70 Fardet (2017) classified “plant-based foods” into fruits, vegetables, legumes,
71 grains, nuts, and seeds; their derived processed counterparts (breads, pasta,
72 breakfast cereals, cooked and fermented vegetables and legumes, and fruit
73 purées, juices, and jams); and their derived ingredients (oleaginous seed-derived
74 oils, sugars, and some herbs and spices). However, these products are usually
75 produced using a significant amount of water, flavourings, oil or fat, binding
76 agents, and colouring agents, apart from protein (textured and non-textured form)
77 (Kyriakopoulou, Keppler & van der Goot, 2021), what can be perceived as
78 negative.

79 From a technological point of view, food additives play an important role in the
80 development of food products, but these additive names, sometimes difficult to
81 pronounce, give rise to the impression of unfamiliarity, which in turn results in
82 perceptions of higher health risk (Varela & Fiszman, 2013). Thus, the trend of
83 clean label products has led consumers to consider what components are used
84 in the food products that they eat in everyday life (Asioli et al., 2017). This trend
85 has emerged due to the concern of consumers about healthiness and
86 sustainability of food products (Euromonitor International, 2016). Despite this
87 trend, there is still no definition or specific regulations/legislation on what is
88 considered as clean label (Aschemann-Witzel, Varela & Peschel., 2019).
89 However, it is generally known that these products contain ingredients perceived
90 as natural, harmless, simple, and those that consumers know and use regularly
91 (Ingredion, 2014). In particular, many consumers trying to reduce meat
92 consumption to shift to healthier and more sustainable diets, find it that highly

93 processed, plant-based meat analogues can be a contradiction, perceiving them
94 as not healthy, and full of additives (Varela et al., 2021). How these two trends
95 (plant-based and clean label) relate to each other, has not yet been widely
96 investigated. Consumer research, thus, needs to support consumers to enhance
97 trust and acceptance towards more sustainable alternatives (Aschemann-Witzel
98 et al., 2019).

99 Hereby, the aim of this research was to explore the perception of consumers
100 following different diets (vegan, vegetarian, flexitarian and omnivorous), towards
101 clean label, plant-based products as compared with their additive-added
102 counterparts, in order to better understand their motives and attitudes, with the
103 view of a transition to healthier and more sustainable diets.

104

105 **2. MATERIAL AND METHODS**

106 **2.1. Consumers**

107 The recruitment goal was to include both consumers interested in plant-based
108 food products and consumers who are generally not interested in this type of
109 food, so consumers were invited that followed different diets with regards to meat
110 consumption (vegan, vegetarian, flexitarian and omnivorous). Participants
111 (n=101) were recruited from vegan and vegetarian consumer groups, university
112 areas and coffee places, who voluntarily filled out the complete survey. As the
113 aim of this research was to find an and spontaneous product differentiations, all
114 participants were untrained or naïve assessors (Dehlholm, 2014). Table 1 shows
115 the socio-demographics information of the 101 respondents, the sample included
116 32 men, 68 women and 1 who preferred not to indicate their gender. Consumers
117 interviewed were mostly students (46.53%) and people employed full-time

118 (28.71%). Many publications pointed out young people as a motor of change in
119 the dietary green-shift (Lu, Bock & Joseph, 2013; Cerri, Testa & Rizzi, 2018; Lago
120 et al., 2020). Additionally, 50 respondents identified themselves as followers of
121 an omnivorous diet, 24 of a flexitarian diet (they try to reduce the meat and animal
122 by-products consumption), 14 of a vegan diet (purely plant-based), and 13 of a
123 vegetarian diet (they can include egg and dairy products). This implies a good
124 representation of the followers of each diet based on the distribution by Spanish
125 diet in 2019 (Lantern study, 2019).

126

127 **2.2. Stimuli**

128 As the global demand for more plant-based food alternatives and specially for
129 meat substitutes and ready-to-eat food have been increasing rapidly in Europe in
130 recent years (Lantern study, 2019; EUVEPRO 2019; Aschemann-Witzel et al.,
131 2020). After visiting different supermarkets in Spain (specialised and non-
132 specialised on vegan and vegetarian products), eight vegan and two vegetarian
133 commercial products were selected, to represent a variation of widely available
134 plant-based available products within these categories (sausages, burger,
135 vegetable steak, salami, croquettes, meatballs, quinoa spread, *sobrassada*,
136 pizza and quinoa with vegetables) (Table S1). The ingredient label of each
137 product was presented on two different cards with the same product picture, but
138 different ingredient lists, one presenting a clean label and the other the original
139 label (see an example card in Fig. 1). In general, the intention in the clean label
140 version was to take out additives, preservatives, allergens, and all ingredients
141 coming from animals to represent the plant-based and the clean label trends.

142

143 **2.3. Projective mapping**

144 Projective mapping (Risvik et al., 1994) was used to study the perception of clean
145 label plant-based products and their mainstream counterparts. This methodology
146 was applied due to its success to study undirected, top-of-mind consumer
147 perception, and has been applied before in relation to claims, nutritional info and
148 other product and ingredient features in different food categories (Varela & Ares,
149 2012; Carrillo et al, 2012; Varela et al, 2017; Aschemann-Witzel et al., 2019).

150 Respondents were asked to place the cards on a DIN A2 white sheet according
151 to their perceived similarities and differences. They were asked to complete the
152 task using their own criteria and they were told that there were no right or wrong
153 answers. After completing the projective mapping task, consumers were asked
154 to provide a description to the groups they made on the sheet paper, or the reason
155 why they mapped them in that way. As a help to explain and understand the task
156 an example of projective mapping showing the categorisation of different objects
157 on a sheet was provided.

158

159 **2.4. Attitude questionnaire**

160 The survey was conducted through a selection of questions from different
161 questionnaires on nutrition knowledge, food choice, and environmental concern,
162 as described below. The participants carried out this questionnaire, using a tablet
163 device, after finishing the projective mapping task.

164 **2.4.1. General nutrition knowledge**

165 The questions about nutrition were selected from the 'General Nutrition
166 Knowledge Questionnaire' (GNKQ) described by Parmenter and Wardle (1999).
167 Selected questions were relevant to plant-based products consumption. The

168 selected questions from the dietary recommendations section was *“Do you think*
169 *health experts recommend that people should be eating more, the same amount,*
170 *or less of these foods?”*; from knowledge of food sources, that is, which foods
171 contain which nutrients were *“Do you think these are high or low in protein?”*, *“Do*
172 *you think these are high or low in fibre/roughage?”*, *“Do you think experts call*
173 *these a healthy alternative to red meat?”* and *“Which one of the following has the*
174 *most calories for the same weight?”*; from the dietary choices were *“Which would*
175 *be the best choice for a low fat, high fibre snack?”* and *“Which would be the best*
176 *choice for a low fat, high fibre light meal?”*; and from the diet- disease associations
177 were *“Are you aware of any major health problems or diseases that are related*
178 *to a low intake of fibre?”*, *“Do you think these help to reduce the chances of getting*
179 *certain kinds of cancer?”* and *“Do you think these help prevent heart disease?”*.

180 **2.4.2. Motives underlying food choice**

181 The questions about motivational factors were selected from the ‘Food Choice
182 Questionnaire’ (FCQ) developed by Steptoe, Pollard and Wardle (1995), which
183 involved nine motivational dimensions (or factors). However, in this study just
184 seven factors were chosen (health, mood, convenience, sensory appeal, natural
185 content, price and ethical concern) and their respective items to evaluate were
186 selected. The survey was evaluated by answering the following question: *‘It is*
187 *important to me that the food I eat on a typical day...’*. In order to know more
188 about the ethical food choice motives, the ethical concern factor was expanded,
189 and the animal welfare factor included according to Lindeman and Väänänen
190 (2000). As described Carrillo, Varela, Salvador and Fiszman (2011) all the
191 questionnaire items were answered on a seven-box scale, labelled from ‘not at

192 all important' to 'very important', to increase the ability to discriminate among food
193 choice motives.

194 **2.4.3. Health and Ecological concern**

195 In order to understand the health concerns related to the naturalness of foods,
196 the Factor 3 labelled *Natural product interest* from the 'Health and Taste Scales'
197 (Roininen, Lähteenmäki & Tuorila, 1999) was selected. This factor was
198 composed of six items involving an interest in eating foods that do not contain
199 additives and are unprocessed. Additionally, to explore general environmental
200 attitudes, 6-items from the 'New Ecological Paradigm Scale' (NEP) described by
201 Dunlap, Van Liere, Mertig and Jones (2000) were chosen. These items were
202 selected to tap into each of the three facets of an ecological worldview: the reality
203 of limits to growth ('the earth has plenty of natural resources if we just learn how
204 to develop them' and 'the earth is like a spaceship with very limited rooms and
205 resources'), anti-anthropocentrism ('plants and animals have as much right as
206 human to exist'), and the possibility of an eco-crisis ('humans are severely
207 abusing the environment', 'the so-called "ecological crisis" facing humankind has
208 been greatly exaggerated' and 'if thing continue on their present course, we will
209 soon experience a major ecological catastrophe'). All the statements were scored
210 on a 7-point scale with the categories ranging from 'strongly disagree' to 'strongly
211 agree'.

212

213 **2.5. Data analysis**

214 All analyses were performed using the software XLStat 2021.2.1 (Addinsoft,
215 USA).

216 **2.5.1. Projective Mapping**

217 The x and y coordinates from each product were recorded in the projective maps
218 from all respondents, measured in centimetres as the distance from the lower left
219 corner. Data were collected and recorded for each consumer group (omnivores
220 and other diets). Terms generated in the descriptive step of the PM were
221 categorized by consensus of two researchers, considering word synonyms and
222 the interpretation of each map as described Aviles et al. (2020), the frequencies
223 of mention of the categorized attributes were counted across all consumers and
224 for each experimental group of the consumer panel, for being able to analyse the
225 results for all consumers and each group separately. To reduce the number of
226 descriptors, only those mentioned by at least 10% of the respondents (in each
227 dietary group) were used (Aschemann-Witzel et al., 2019). A Multifactor Analysis
228 (MFA) was used to analyse the projective mapping task for each consumer group.

229 **2.5.2. General knowledge questions**

230 In order to analyse the GNKQ, the number of correct answers for each section
231 were counted for each consumer group and an analysis of variance was
232 conducted to observe the differences between the groups.

233 **2.5.3. Attitude questions**

234 An analysis of variance was performed for each item and factor of the FCQ,
235 'Health and Taste Scales' and NEP. A factor analysis (FA) with varimax rotation
236 was conducted to study the factor structure.

237 **2.5.4. Consumer segmentation analyses**

238 Data were analysed based on the *a priori* consumer segmentation, focused on
239 understanding consumers following different diets. Some analyses compare two
240 groups: omnivores vs "other diets", to explore the differences in perception
241 between omnivore consumers and those who completely avoid animal products,

242 avoid or reduce their meat consumption (vegan, vegetarian and flexitarian). This
243 was also to have stable sample configurations in the projective mapping
244 outcomes, having 50 consumers in each group (Vidal et al., 2014). For having
245 more details on the perception of the products and the different consumer
246 motivations by the “other diets” group, it was divided for further analysis into
247 vegans/vegetarians and flexitarians (the vegan group was too small to draw
248 conclusions on its own).

249

250 **3. RESULTS**

251 It is important to point out that the purpose of this research was not to draw
252 conclusions on the acceptability of specific products or market implications, but
253 on how the information on the label influences the product descriptions and
254 product choice information by consumers with different diets.

255

256 **3.1. Perception and categorisation of plant-based products via Projective 257 Mapping: omnivores vs other diets**

258 **3.1.1. Omnivores**

259 Consumer categorisation showed a clear distinction into three groups of
260 products, which were set apart from each other in the first two dimensions of the
261 MFA (Fig. 2a). The first group located in the upper left quadrant contains the four
262 labels of the two plant-based products which are breaded (croquettes and
263 meatballs), without differentiating if they were original or clean label (CL). In the
264 lower left quadrant, the second group was located, comprising both options of
265 pizza and quinoa with vegetables, again without separating the original from the
266 clean label. Finally, the third group located in the upper and lower right quadrant

267 contained the meat analogues like burgers, steaks and cold cuts, and the quinoa
268 spreads, without separation of original and clean labels. The Fig. 2b shows the
269 representation of the terms obtained in the descriptive by omnivore group.
270 Sixteen terms were obtained in three categories, their distribution was as follows:
271 use and type of products (7 different terms: “ready-to-eat”, “necessary to heat”,
272 “cold cut”, “spreadable”, “breaded”, “fried”, and “meat analogue”), nutrition and
273 health characteristics (5 different terms: “simple/additive free”, “with additives”,
274 “natural”, “artificial/processed food”, and “healthy”), and composition/ingredients
275 (4 different terms: “allergen”, “gluten”, “vegetable (plant-based)”, and
276 “carbohydrates”). Croquettes and meatballs products were described as
277 breaded, fried and with gluten; the pizza and quinoa with vegetables were
278 described as healthy, ready-to-eat, vegetable and rich in carbohydrates. On the
279 other hand, the third, larger and more heterogeneous group, consisting of burger,
280 sausages, salami, vegetable steak, *sobrassada* and quinoa spread, was
281 described as meat analogue, natural, simple/additive free, necessary to heat,
282 cold cut, spreadable and allergen. Thus, the third group of products was more
283 positively perceived by omnivores although the products of the second group
284 were classified as healthy. The attributes “artificial/processed food” and “with
285 additives”, and “allergens” were located in the middle of the map, not well
286 correlated to the perceptual space, and describing all the items in all the groups
287 (regardless of CL or not). Omnivore consumers did not use these attributes as
288 main drivers for product categorization, but rather classified products by their type
289 and utilization, as highlighted also by the fact that clean label and original ones
290 were mapped together within each category.

291

292 **3.1.2. Other diets (vegans, vegetarians and flexitarians)**

293 The categorisation of the “other diets” group (vegan, vegetarian and flexitarian
294 consumers) resulted in four groups (Fig. 3a). The map was divided into two large
295 groups. In the upper left part of the map was located the first group which
296 contained the clean-label products and the second group formed by originals
297 products was located in the bottom right part of the map. This shows that for
298 consumers reducing or avoiding meat and other animal products (“other diets”),
299 the status of clean label is an important characteristic for their perception of plant-
300 based foods, quite different to the map obtained for omnivorous consumers.

301 The descriptors obtained by “other diets” group are shown in Fig. 3b. In this case,
302 seventeen terms were collected, and separated in a similar way as for the
303 omnivore group. Four categories were obtained and their distribution was as
304 follows: use and type of products (4 different terms: “ready-to-eat/fast food”,
305 “spreadable”, “fried”, and “meat analogue/replacer”), nutrition and health
306 characteristics (6 different terms: “simple/additive free”, “with additives”, “natural”,
307 “artificial/processed food”, “non-healthy” and “healthy”), composition/ingredients
308 (3 different terms: “allergen”, “animal”, and “vegetable (plant-based)” and,
309 preference and consumption (4 different terms: “frequently”, “occasionally”,
310 “would buy it/look nice” and “wouldn’t buy it/don’t like it”).

311 Clean label products were characterised as additive-free and natural (top left)
312 while the original products were described as with additives (bottom right
313 quadrant). In both groups of products (CL and original), the products on the left
314 (quinoa spread, *sobrassada* and quinoa with vegetables) were perceived as more
315 natural, since descriptors such as simple/additive-free, natural, healthy, would
316 buy it/look nice, and frequently consumption were used. However, products which

317 simulate meat (burger, salami, vegetable steak and sausages) were located on
318 the right and they were more negatively described with terms as with additives,
319 wouldn't buy it/don't like it, artificial/processed foods, non-healthy and with animal
320 ingredients, what supposes a rejection towards these types of products by vegan
321 consumers. Products located in the middle of the map were classified by their
322 type and consumption. "Other diet" consumers evaluated the products for their
323 nutritional and health aspects, also highlighted by the fact that the clean label and
324 the originals were mapped separately.

325

326 **3.2. Perception and categorisation of plant-based products via Projective** 327 **Mapping: flexitarians vs vegans/vegetarians**

328 Fig. 4a shows the categorisation of the flexitarian group and Fig. 4b the
329 descriptors obtained by this group. Flexitarians categorized the products in two
330 large groups, divided according to F1, on the right the clean label products, and
331 on the left the original label products (Fig. 4a). The clean label products were
332 associated to positive descriptors as healthy, would buy it/look nice and
333 simple/additive-free; however, the products with original labels were linked to
334 negative descriptors as artificial/processed food, with additives and wouldn't buy
335 it/don't like it (Fig. 4b).

336 The map of vegans and vegetarians also presented two different groups (Fig. 4c),
337 the first one was located in the top of the map and consisted of clean label
338 products. On the left were the clean-label products considered more artificial,
339 processed and meat analogues/replacers, and the products perceived as natural,
340 simple/additive-free and healthy were on the right of the map (Fig. 4d). The
341 second group was formed by original products and was in the bottom of the map.

342 Products on the left were perceived as non-healthy, with additives and with animal
343 ingredients. However, products on the right were perceived as healthy (Fig. 4d).
344 Even if the two groups of consumers represented here were not extremely
345 different in perception, it is interesting to highlight that flexitarian consumers
346 seemed to have given more importance to the category/product usage, further
347 dividing the CL group in two subgroups of meat-analogues (burger, sausages,
348 steak, salami) from the rest.

349

350 **3.3. Attitude questionnaires**

351 **3.3.1. Nutritional knowledge**

352 In order to assess the general nutrition knowledge of the two consumer groups,
353 the correct answers for each section of this questionnaire were collected for each;
354 the results from GNKQ for each section are depicted in Fig. 5. It can be observed
355 that both groups presented, in general, similar knowledge about nutrition, since
356 there were no significant differences between them in any section of the
357 questionnaire ($p > 0.05$) (Fig. 5a). However, when the meat reducers group was
358 further divided into vegans/vegetarians and flexitarians, it can be observed that
359 vegans and vegetarians had a greater significant knowledge about dietary
360 recommendations than flexitarians ($p < 0.05$) (Fig. 5b).

361

362 **3.3.2. Food choice and environmental attitudes**

363 Table 2 shows the mean scores for each item of the FCQ and the factor analysis
364 results performed to detect the load of each item and the relationship with the
365 factor. When assessors were divided into omnivores and other diets group, the
366 item “keeps me healthy” was the most important for both groups. On the other

367 hand, the item “has been produced in a way that animals have not experienced
368 pain” was the least important for omnivores, while and for consumers following
369 other diets was the least important item was “takes me no time to prepare”.
370 Moreover, the statistical analysis highlighted significant differences between the
371 food choice motives ($p < 0.05$). People who follow an omnivorous diet indicated
372 a pleasant texture as significantly more important when choosing food than for
373 vegan, vegetarian or flexitarian consumers. In the case of naturalness, vegans,
374 vegetarians and flexitarians thought it was significantly more important than
375 omnivores (“Contains no artificial ingredients”). Moreover, it should be noted that
376 all the items of “Ethical concern/Environmental protection” and “Animal welfare”
377 factors were significantly more important for meat reducer/meat avoiding
378 followers than for omnivores.

379 Further comparing the subgroups within “other diets”, depending if they are a
380 meat reducer (flexitarians) or meat/animal products avoiders, in the second part
381 of the Table 3 it can be observed that for vegan/vegetarian consumers the
382 “Animal welfare” factor and the items “has been prepared in an environmentally
383 friendly way”, and “has been produced in a way which has not shaken the balance
384 of nature” were significantly more important than for flexitarians.

385 The survey results about health concern and environmentalism are depicted in
386 Table 4. These results showed that other diets consumer group have a higher
387 concern in the natural product interest, since the “I try to eat foods that do not
388 contain additives”, “I do not eat processed foods, because I do not what they
389 contain” and “I would like to eat only organically grown vegetables” items were
390 significantly more important to them than to omnivores group ($p < 0.05$).
391 Additionally, they also presented a higher ecological interest in the abuse of the

392 environment, the plants and animals rights, and the possible ecological
393 catastrophe ($p < 0.05$). However, when this group is divided into
394 vegans/vegetarians and flexitarians it was only observed that all of them think
395 similarly about natural products, but vegan and vegetarian consumers have a
396 higher concern about plants and animals' rights and the earth's limited resources
397 ($p < 0.05$).

398

399 **4. DISCUSSION**

400 The popularity of plant-based products has been increasing considerably in
401 recent years. However, the results of this study show differences in attitudes,
402 perception and product categorisation depending on the consumer diet
403 (omnivore, flexitarian, vegetarian, vegan). This is in line with recent findings
404 showing that consumers may have different attitudes and motivations depending
405 on the stage of behavioural change towards meat reduction or avoidance
406 (thinking of reducing meat, actually reducing and maintaining that reduction)
407 (Hielkema et al., 2021). More concretely, omnivores in our study separated three
408 groups of plant-based products, based on the category and usage, fried products,
409 products enriched in carbohydrates and the last one as meat analogue products,
410 but clean label and original products were mapped together. However, the meat
411 reducers and avoiders ("other diets") group, perceived plant-based products in a
412 different way, focusing on the clean label status for their categorization. In this
413 case, they perceived the group which contains CL spread food and quinoa with
414 vegetables as healthy, and they use frequency of consumption descriptors to
415 classify them (i.e., frequently for the CL, would not buy for the original products,
416 and occasionally in the middle). It is a well-known fact that meat reducers or

417 avoiders are more concerned about health and sustainability, as can also be
418 observed in the main motivations displayed by this consumer group when
419 answering to the attitude questions. Omnivores did not use any frequency of
420 consumption descriptors, may be because they thought that these kinds of
421 products, in general, were not directed at them, and perhaps they may not like
422 the texture or flavour and they may prefer to consume meat products instead
423 (Lea, Crawford & Worsley, 2006; Fiestas-Flores & Pyhälä, 2018). Additionally,
424 meat-eaters are more resistant to going vegetarian because they perceive
425 vegetarian diets as less tasty, more expensive, less familiar, less convenient, and
426 less healthful (Fiestas-Flores & Pyhälä, 2018; Rosenfeld & Tomiyama, 2020).
427 The meat reducers and avoiders in this study differentiated clean label from
428 original products, perceiving clean label products as more natural and simpler. It
429 can be pointed out that most of “other diets” consumers described products which
430 simulate meat products as “replacer” not as “analogue”, this is an important
431 nuance since they perceived these products like an alternative and, with their
432 consumption, they can supply meat products. However, omnivores perceived
433 these products as products that simulate meat or as a “copy-cat” of meat
434 products. Fiestas-Flores & Pyhälä (2018) pointed out that the taste of animal
435 products is the main challenge for Spanish omnivores to choose to reduce or
436 avoid meat from their diet and in that sense, it can be highlighted that Spain has
437 become the country with the largest meat consumption in Europe (Faber et al.,
438 2020). This different categorisation might be explained by the larger importance
439 that meat-reducers give to health and sustainability, and the different degrees of
440 familiarity towards meat analogues. This is interesting, as familiarity (or rather the
441 lack thereof) is one of the big barriers towards meat reduction. Hielkema et al.

442 (2021) confirmed that identity-incongruence (eating foods not familiar or part of
443 their habitual behaviour) inhibits consumers to progress towards meat reduction,
444 and they highlighted that for consumers that were already reducing meat, climate
445 concerns were important drivers, but not for those consumers with no intention to
446 reduce meat.

447 For most consumers, naturalness is crucial to which food industry's answer has
448 been the "clean label" trend (Roman et al, 2017), defined by Ingredion (2014) as
449 *"a 'clean label' positioned on the pack means the product can be positioned as*
450 *'natural', 'organic' and/or 'free from additives/preservatives'."* Our study has
451 shown that consumers may react differently and have a different degree of
452 interest/focus in this trend when categorizing plant-based products. We can
453 confirm that meat-reducers and meat avoiders are more related to this trend,
454 since they pointed out as main reasons for choosing foods that did not contain
455 additives, that were not processed food and that they preferred organically grown
456 vegetables, also, we saw that those consumers categorized clean label products
457 in a different group than the original counterparts. This stronger focus on clean
458 label vs additive added products in the meat reducers and avoider groups, goes
459 in line to what Clicerri et al. (2018) found in their study on attitudes, vegetarian
460 and meat reducers' attitudes towards healthy and natural food products were
461 more positive than omnivores' attitudes. Furthermore, when it comes to
462 veganism, it has been described as "a way of life rather than a simple dietary
463 choice" (North et al., 2021), many times overlaying with other ideology groups
464 (animal activists, environmentalists, focus on social justice), which is also the
465 case for many vegetarians (Rosenfeld & Barrow, 2017) and these groups can be
466 somehow more absolutists in their dietary and lifestyle choices.

467 In general, consumers presented a similar knowledge about nutrition; however,
468 the reasons for choosing food vary according to the diet that each consumer
469 follows. The perception of clean label plant-based products by
470 vegans/vegetarians and flexitarians were quite similar, although flexitarian
471 consumers gave a further division between the CL group separating meat-
472 analogues from the rest. Furthermore, vegans and vegetarians showed a higher
473 concern about dietary recommendations; it could be because vegan/vegetarian
474 consumers need to obtain key nutrients such as zinc, vitamin B12 and protein
475 from alternative sources (Sneijder & te Molder, 2009), so that, they are likely to
476 follow the nutritional recommendations more closer than meat eaters. Thus, the
477 different perception of clean label plant-based products could be related to the
478 attitudes of each consumer diet; commonly, the vegetable and fruit consumption
479 is associated with a healthy dietary pattern and more concern about
480 sustainability. An association between dietary patterns and environmental
481 concern was observed in this study, as results indicated by Asvatourian et al.
482 (2018). Furthermore, our study confirms that reduced-meat diets, vegans and
483 vegetarians, are more motivated by the environmental issues and animal rights
484 than omnivores, in line with that reported by Hopwood, Rosenfeld, Chen and
485 Bleidorn (2021) for vegetarians. Spanish vegan and vegetarians showed having
486 the highest levels of affection towards animals and environmental awareness,
487 while omnivores were least likely to draw similarities between human and non-
488 human animal emotions (Díaz, 2016; Fiestas-Flores & Pyhälä, 2018). Moreover,
489 the ecological drive for vegetarianism has been documented as the most often
490 listed reason. This is based on the fact that meat consumption strongly increases
491 the greenhouse gas emissions, which increase the ecological footprint, as well

492 as the water footprint (De Backer & Hudders, 2014). However, considering the
493 existing literature showing that concerns about animal welfare and environmental
494 impact are the most common reasons for avoiding meat (De Backer & Hudders,
495 2014; Malek, Umberger & Goddard, 2019; Malek & Umberger, 2021), we
496 observed that what distinguished meat reducers from meat avoiders was the
497 importance that they gave to animal welfare factors. Similarly, Fiestas-Flores &
498 Pyhälä (2018) pointed out that human-like animal attributes directly affected
499 Spanish students' intentions to become vegetarian and vegan.

500 Attitudes towards a vegetarian lifestyle have been shown to be significantly
501 correlated with nutritional knowledge (Pribis, Pencak, & Grajales, 2010; Corrin &
502 Papadopoulos, 2017). However, in this study no differences were found between
503 omnivores and other diets group related to healthy patterns, it could be because
504 vegans and vegetarians are more likely to cite ethical motivations over health
505 ones (Rosenfeld, 2018). Thus, the increase of plant-based products in markets
506 (Lantern Study, 2019) may promote the benefits of these ones on sustainability,
507 environment, and animal rights, in addition to health. Both omnivores and meat-
508 reducers and avoiders seem to know well that a meat-reduced diet is positive,
509 since they presented similar nutritional knowledge in our study, as results
510 reported by Asher and Peters (2020). So that, Lea, Crawford and Worsley (2006,
511 p. 835) report that “the primary barrier to eating a vegetarian diet related to taste,
512 whereas taste barriers ranked relatively low in the plant-based diet survey,” which
513 is also in line with the results obtained in our study, since omnivores showed that
514 one of the motives for choosing foods is “have a pleasant texture”, unlike meat-
515 replacers.

516 On the other hand, most consumers of this study were young people (<44 years),
517 some of them students with low incomes (Table 1). Fuller, Brown, Rowley and
518 Elliott-Archer (2021) indicated that people who follow a vegan diet are particularly
519 young, females and those living in urban areas. University-educated and younger
520 people may be more receptive to information on changing to a plant-based diet
521 and they appeared to be more willing to alter their diet than the non-university
522 educated and oldest groups (Lea, Crawford & Worsley ,2006). Furthermore,
523 although they present low incomes while they are studying, it is to be expected
524 that they would have high socio-economic status and would take up this form of
525 eating first (Lea, Crawford & Worsley ,2006).

526 It has been suggested that there is not “one size fits all” with regards to plant-
527 based foods and consumers (Aschemann-Witzel et al., 2020); our study further
528 contributes to the understanding that these two big consumer trends growing in
529 the last years, of plant-based foods and clean-label may interact in different ways
530 with regards to consumer perception and attitudes, which would ultimately affect
531 their choices towards healthier and more sustainable foods.

532

533 **4.1. Limitations and future research**

534 This study is a first visualization of the interaction of the clean label with the
535 perception of plant-based products by consumers in different stages of meat
536 reduction, avoidance and omnivores, but future research might be performed by
537 focusing on other factors such as gender, age, income and/or diet familiarity,
538 among others, as well as focusing on how taste might influence the effects seen
539 in this work, by including product tasting.

540 It should be noted that this study was performed before the COVID-19 crisis,
541 which has impacted consumer's attitudes and habits in many ways. If this survey
542 were carried out today, the results could be different, since Spanish population
543 during the COVID-19 health crisis has increased its concern for a healthy lifestyle,
544 with an increase of physical activity and fruit and vegetable consumption
545 (Academia Española de Nutrición y Dietética, 2020; López-Bueno et al., 2020).
546 It could be related to the families had more time to cook and improve eating
547 habits, even though this did not increase the overall diet quality of Spanish
548 population (Ruiz-Roso et al., 2020).

549 This study represents a sample of Spanish consumers; so these results may be
550 different in other cultural contexts and environments settings (Ares, 2018).

551

552 **4. CONCLUSIONS**

553 Consumer categorisation and perception of clean label plant-based products was
554 different depending on the type of diet. The present results show that flexitarian,
555 vegetarian and vegan consumers pay more attention to food naturalness quality
556 and health, following the clean label trend, as compared to omnivorous
557 consumers. At the same time, this group also presents a greater concern for
558 animal welfare and sustainability. Clean label plant-based products were
559 perceived as healthy, simple/additive-free, natural, and would buy it/look nice by
560 meat reducers and avoiders, while omnivores did not focus on the clean label
561 status when categorizing plant-based products.

562 We hereby present a first exploration of consumers' categorisation and
563 perception of clean label plant-based products, and its relation to consumer
564 attitudes, depending on their diet, and it can help to the understanding of how

565 different consumers perceive them, at the light of supporting consumers in a
566 transition to healthier, more sustainable diets.

567

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Figure captions

Fig. 1. Example of experimental card, (a) original label and (b) clean label (CL).


Fig. 2. Perceptual space determined by the first two factors of the MFA in the projective mapping task by **omnivores**. (a) Representation of the samples and (b) representation of the terms obtained in the descriptive step. Note: CL before the food product name means “clean-label”.

Fig. 3. Perceptual space determined by the first two factors of the MFA in the projective mapping task by consumers of “**other diets**” (vegetarian, vegan and flexitarian). (a) Representation of the samples and (b) representation of the terms obtained in the descriptive step. Note: CL before the food product name means “clean-label”.

Fig. 4. Perceptual space determined by the first two factors of the MFA in the projective mapping task by flexitarians and vegans/vegetarians. (a) Samples' representation by flexitarians; (b) representation of terms obtained by flexitarians; (c) samples' representation by vegans/vegetarians; (d) representation of terms obtained by vegans/vegetarians.


Fig. 5. GNQK correct answers for each section: (a) differences between omnivores and “other diets” group and (b) differences between flexitarians and vegans/vegetarians.

a) **309**



MEATBALLS. INGREDIENTS: Water, **wheat gluten**, **seitan** (18.2%), sunflower oil, fried tomato (tomato, olive oil, onion, leek, cane sugar, salt, garlic, acidifier: citric acid E330), **tofu** (9.1%) (water, **soybeans**, coagulant: calcium sulfate E516), **almond**, onion, brewer's yeast (contains **wheat**), spices (contains **celery**), sea salt, apple cider vinegar, cornstarch, garlic, sauce **soybean** (contains **wheat**), thickeners: xanthan gum E415 and carrageenan E407; parsley, emulsifier: **soy** lecithin E322. Breaded: breadcrumbs (contains **wheat**), **soy** drink.

b) **523**



MEATBALLS. INGREDIENTS: Water, buckwheat protein, sunflower oil, fried tomato (tomato, olive oil, onion, leek, cane sugar, salt, garlic, lemon extract), *Plantago psyllium* preparation (water, Plantago fibre (6%)) (9.1%), onion, gluten-free brewer's yeast, spices, sea salt, apple cider vinegar, cornstarch, garlic, pea fibre, parsley, potato protein. Breaded: gluten-free breadcrumbs, rice drink.

Fig. 1.

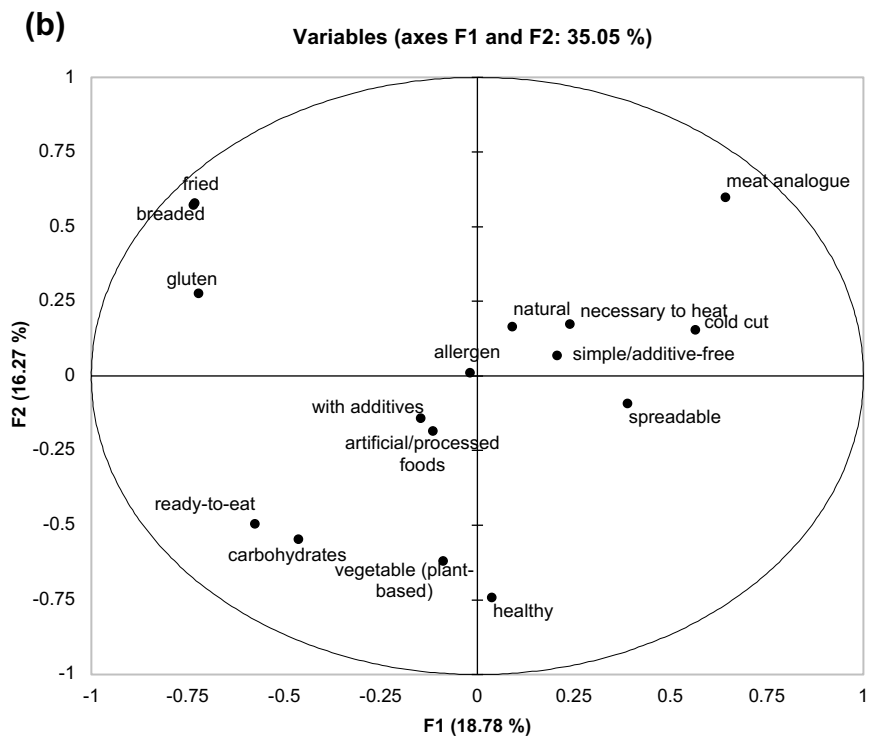
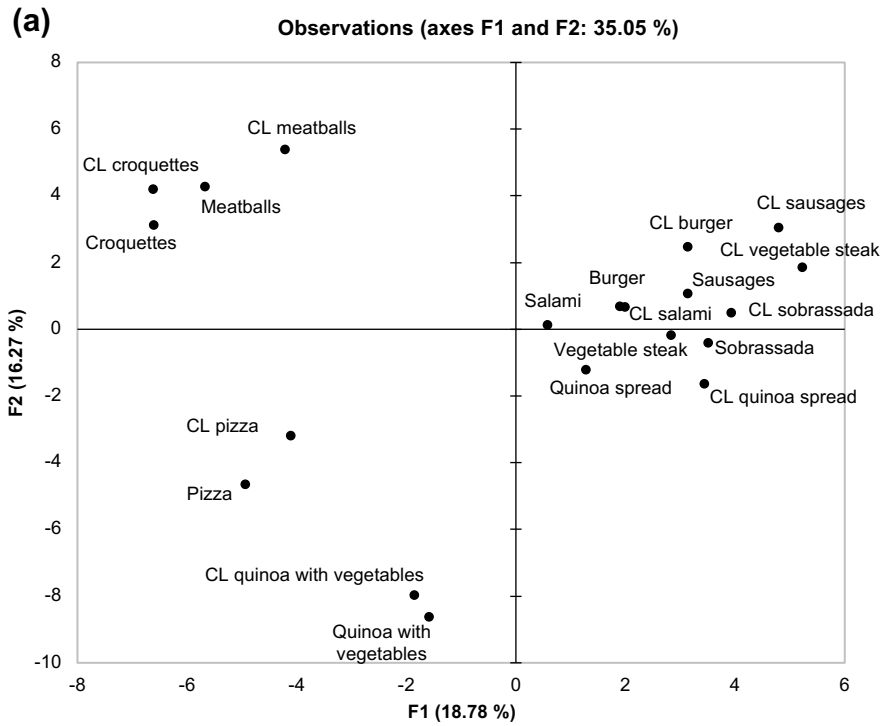


Fig. 2.

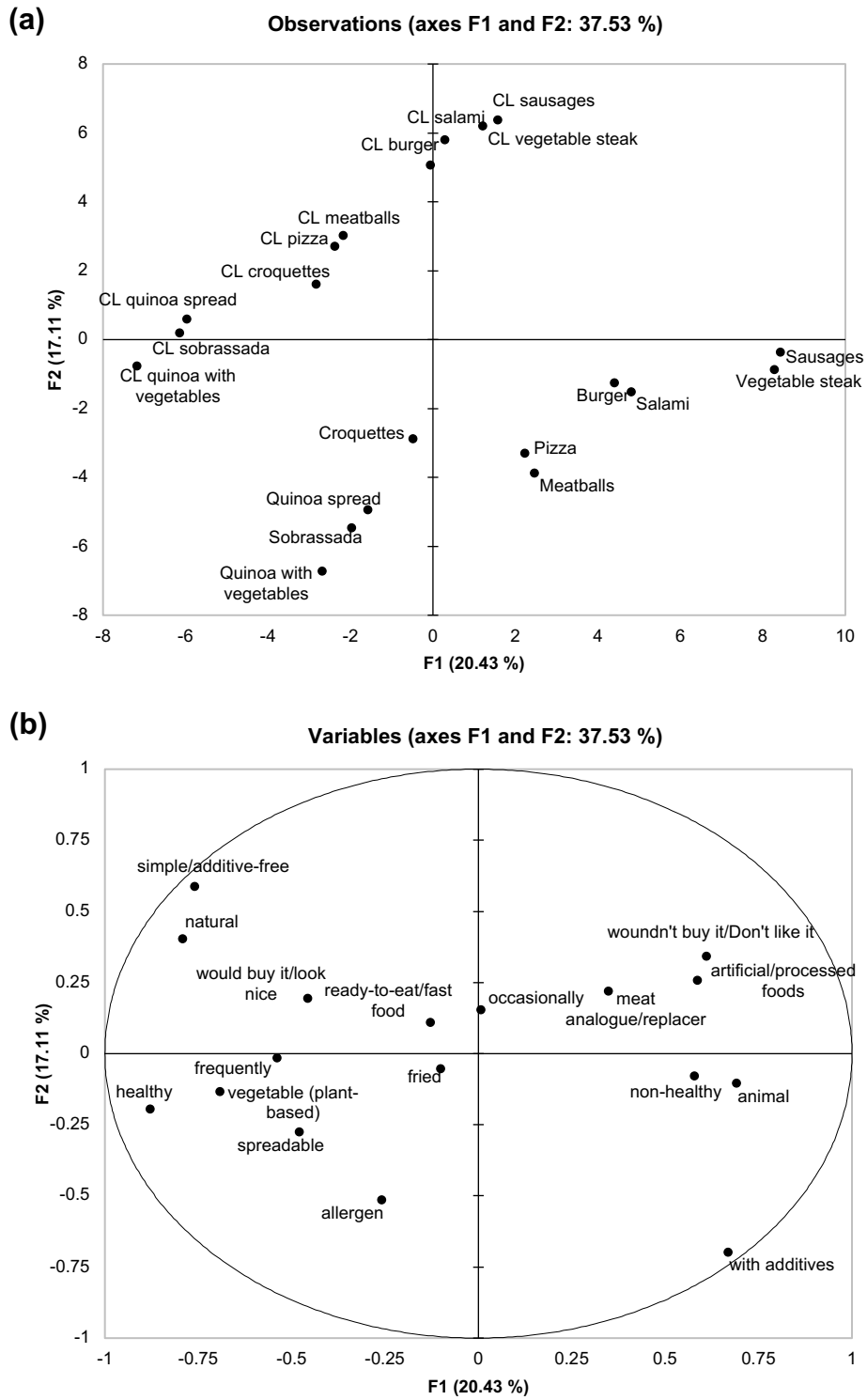


Fig. 3.

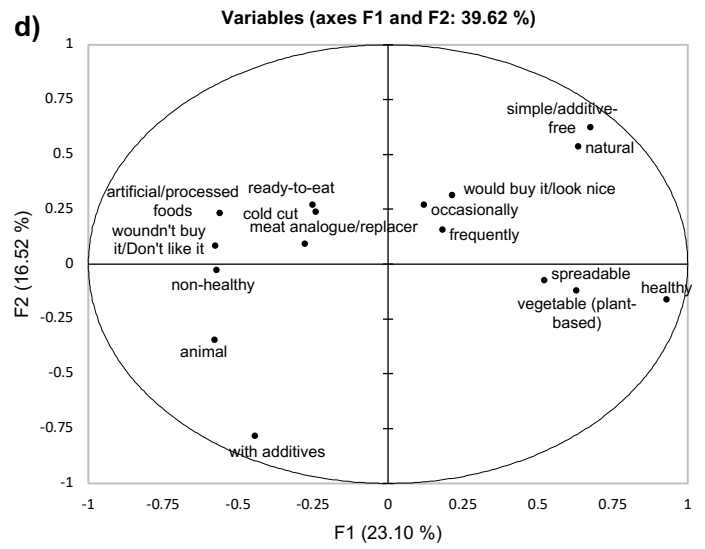
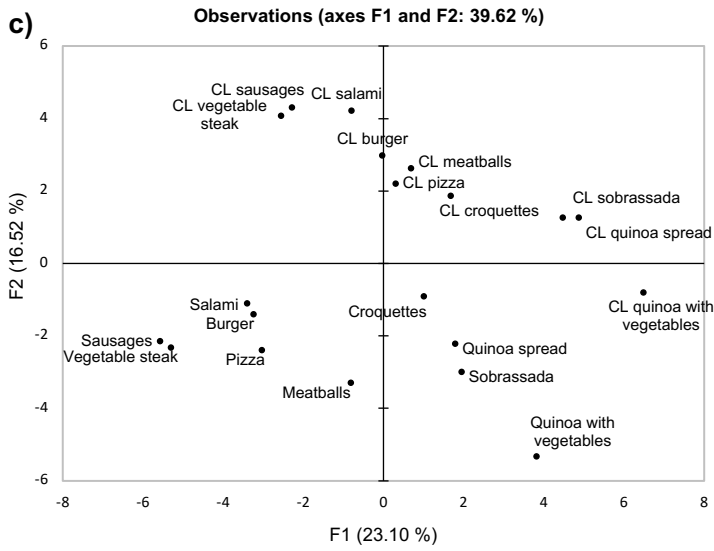
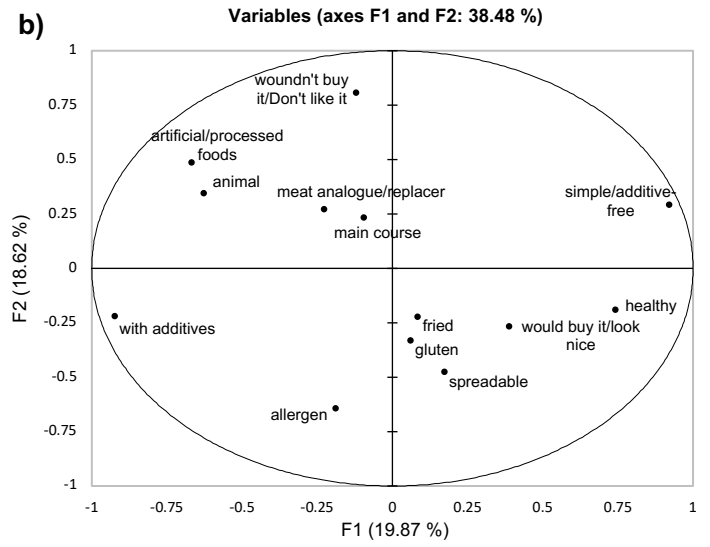
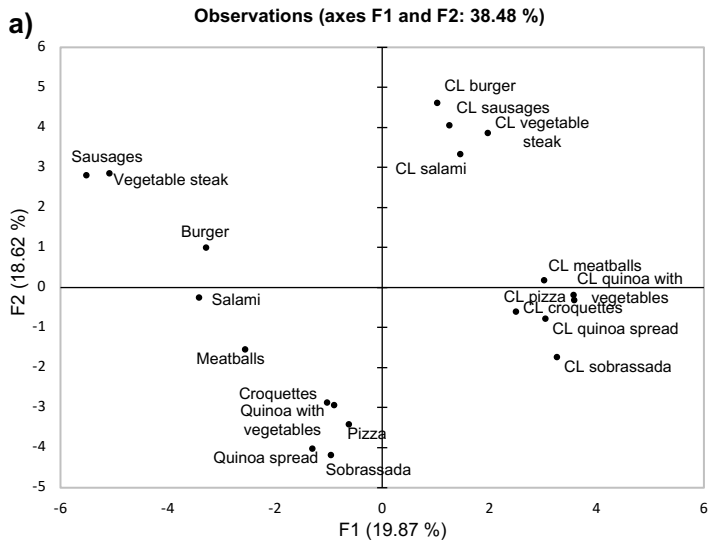


Fig. 4.

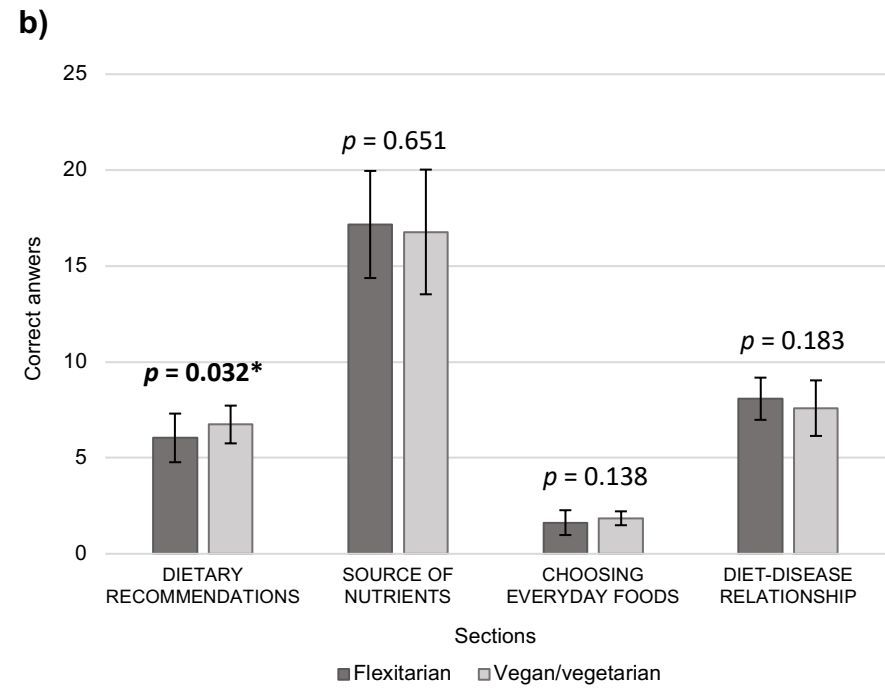
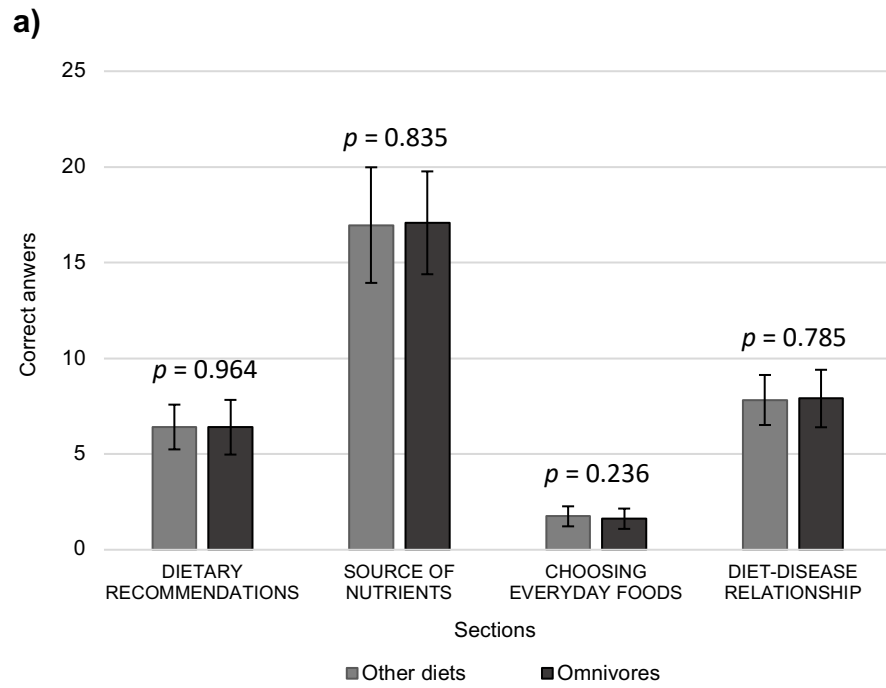


Fig. 5.

Table 1. Socio-demographic information of 101 respondents.

Socio-demographic information	Number of respondents	Percentage
Gender		
Male	32	31.68%
Female	68	67.33%
I prefer not to say	1	0.99%
Age		
18-24	27	26.73%
25-34	58	57.43%
35-44	10	9.90%
45-54	3	2.97%
55-64	3	2.97%
Education level		
Secondary school	9	8.91%
Professional training	9	8.91%
Degree	42	41.58%
Master	26	25.74%
Doctorate	14	13.86%
I prefer not to say	1	0.99%
Country		
Spain	82	81.19%
Europe	10	9.90%
Latin America	9	8.91%
Diet		
Vegetarian	13	12.87%
Vegan	14	13.86%
Omnivorous	50	49.50%
Flexitarian	24	23.76%
Employment status		
Student	47	46.53%
Unemployed	3	2.97%
Employed Part-time	9	8.91%
Employed Full-time	29	28.71%
Public worker	12	11.88%
Retired	1	0.99%
Salary		
< 500	26	25.74%
500-1000	23	22.77%
1000-1500	22	21.78%
1500-2000	21	20.79%
2000-2500	5	4.95%
I prefer not to say	4	3.96%
Live status		
Alone	14	13.86%
In couple	29	28.71%
With family	36	35.64%
Sharing floor	22	21.78%

Table 2. FCQ-items means, standard deviations (SD), factor loading and *p*-value for answer to: “It is important to me that the food I eat on a typical day” for each experimental group.

Factors and items	Omnivores	Factor loading	Other diets	Factor loading	<i>p</i> -value	Vegans/Vegetarians	Factor loading	Flexitarians	Factor loading	<i>p</i> -value
	Mean (SD)		Mean (SD)			Mean (SD)		Mean (SD)		
Factor 1. Health										
Keeps me healthy	6.38 (0.78)	0.442	6.47 (0.73)	0.616	0.548	6.59 (0.69)	0.589	6.33 (0.76)	0.578	0.209
Is high in protein	4.80 (1.41)	0.415	4.84 (1.27)	0.268	0.872	5.11 (0.89)	0.270	4.54 (1.56)	0.312	0.124
Is high in fibre and roughage	4.66 (1.29)	0.505	5.02 (1.27)	0.435	0.161	5.04 (1.02)	0.623	5.00 (1.53)	0.474	0.921
Factor 2. Mood										
Helps me to cope with life	5.52 (1.39)	0.330	5.90 (1.30)	0.388	0.157	5.93 (1.44)	0.189	5.88 (1.15)	0.573	0.891
Makes me feel good	6.22 (1.27)	0.391	6.33 (0.93)	0.496	0.609	6.33 (1.00)	0.364	6.33 (0.87)	0.574	1.000
Factor 3. Convenience										
Is easy to prepare	4.88 (1.76)	0.707	4.76 (1.56)	0.661	0.728	5.19 (1.39)	0.566	4.29 (1.63)	0.733	0.039*
Is easily available in shops and supermarkets	5.70 (1.27)	0.605	5.55 (1.32)	0.426	0.558	5.82 (1.15)	0.686	5.25 (1.45)	0.416	0.127
Takes me no time to prepare	4.72 (1.62)	0.633	4.65 (1.65)	0.693	0.823	4.89 (1.53)	0.546	4.38 (1.77)	0.764	0.270
Factor 4. Sensory appeal										
Has a pleasant texture	6.06 (1.08)	-0.038	5.35 (1.43)	0.654	0.006*	5.22 (1.70)	0.621	5.50 (1.06)	0.577	0.482
Looks nice	5.44 (1.25)	0.222	5.00 (1.39)	0.740	0.097	4.96 (1.45)	0.600	5.04 (1.33)	0.675	0.842
Factor 5. Natural content										
Contains no additives	4.32 (1.76)	0.511	4.90 (1.63)	0.377	0.087	4.89 (1.78)	0.441	4.92 (1.47)	0.625	0.952
Contains natural ingredients	5.60 (1.21)	0.560	5.98 (1.10)	0.399	0.102	6.00 (1.24)	0.597	5.96 (0.96)	0.637	0.895
Contains no artificial ingredients	4.64 (1.71)	0.573	5.51 (1.29)	0.416	0.005*	5.52 (1.28)	0.761	5.50 (1.32)	0.692	0.960
Factor 6. Price										
Is not expensive	4.76 (1.60)	0.649	5.25 (1.34)	0.617	0.095	5.41 (1.42)	0.541	5.08 (1.25)	0.598	0.394
Is good value for money	5.84 (1.22)	0.722	5.92 (0.98)	0.279	0.711	5.85 (1.03)	0.513	6.00 (0.93)	0.268	0.594
Factor 7. Ethical concern/Environmental protection										
Is packaged in an environmentally friendly way	5.14 (1.47)	0.710	6.00 (1.15)	0.752	0.001*	6.26 (1.06)	0.744	5.71 (1.20)	0.665	0.087
Has been prepared in an environmentally friendly way ^a	5.16 (1.49)	0.815	6.10 (1.22)	0.840	0.001*	6.56 (0.85)	0.786	5.58 (1.38)	0.856	0.005*
Has been produced in a way which has not shaken the balance of nature ^a	4.98 (1.45)	0.905	5.86 (1.22)	0.874	0.001*	6.33 (0.92)	0.796	5.33 (1.31)	0.864	0.003*
Factor 8. Animal welfare										
Has been produced in a way that animals have not experienced pain ^a	4.51 (1.92)	0.636	6.02 (1.53)	0.569	<0.0001*	6.85 (0.46)	0.483	5.08 (1.77)	0.478	<0.0001*
Has been produced in a way that animals' rights have been respected ^a	4.84 (1.49)	0.780	6.24 (1.09)	0.751	<0.0001*	6.74 (0.66)	0.576	5.67 (1.20)	0.793	0.000*

Mean values in bold type correspond to the highest mean for each factor.

* indicates significant differences at *p*-value < 0.05

^a Items from Lindeman and Väänänen (2000).

Table 3. Natural products interest and NEP-items means, standard deviations (SD), factor loading and *p-value* for each experimental group.

Factors and items	Omnivores	Factor loading	Other diets	Factor loading	<i>p-value</i>	Vegans/Vegetarians	Factor loading	Flexitarians	Factor loading	<i>p-value</i>
	Mean (SD)		Mean (SD)			Mean (SD)		Mean (SD)		
Natural product interest ^a										
I try to eat foods that do not contain additives	4.14 (1.90)	0.851	5.12 (1.76)	0.848	0.008*	5.33 (1.86)	0.853	4.88 (1.65)	-0.856	0.359
I do not care about additives in my daily diet	3.28 (1.59)	-0.593	2.92 (1.86)	-0.824	0.302	3.15 (1.96)	-0.687	2.67 (1.76)	0.885	0.362
I do not eat processed foods, because I do not what they contain	2.80 (1.65)	0.474	3.57 (1.60)	0.411	0.020*	3.59 (1.53)	0.776	3.54 (1.72)	-0.398	0.911
I would like to eat only organically grown vegetables	3.66 (1.94)	0.536	5.02 (1.88)	0.750	0.001*	5.37 (1.80)	0.848	4.63 (1.93)	-0.697	0.160
In my opinion, artificially flavoured foods are nor harmful for my health	3.30 (1.91)	-0.738	3.00 (2.05)	-0.635	0.448	3.04 (2.21)	-0.752	2.96 (1.90)	0.471	0.893
In my opinion, organically grown foods are no better for my health than those grown conventionally	3.96 (1.91)	-0.629	3.26 (2.08)	-0.728	0.079	3.56 (2.34)	-0.791	2.92 (1.72)	0.751	0.277
New Ecological Paradigm scale ^b										
Humans are severely abusing the environment	6.58 (0.86)	0.657	6.88 (0.43)	0.663	0.027*	6.96 (0.19)	0.280	6.79 (0.59)	0.723	0.184
The earth has plenty of natural resources if we just learn how to develop them	5.98 (1.29)	0.215	5.98 (1.46)	0.549	0.999	5.89 (1.58)	0.538	6.08 (1.35)	0.670	0.640
Plants and animals have as much right as human to exist	5.64 (1.61)	0.559	6.35 (1.47)	0.502	0.022*	6.78 (0.64)	0.176	5.88 (1.94)	0.346	0.038*
The so-called "ecological crisis" facing humankind has been greatly exaggerated	2.88 (1.69)	0.222	2.41 (1.97)	-0.308	0.203	2.48 (2.10)	-0.319	2.33 (1.86)	0.346	0.792
The earth is like a spaceship with very limited rooms and resources	5.76 (1.62)	0.693	5.49 (2.10)	0.507	0.473	6.04 (1.74)	0.619	4.88 (2.33)	0.680	0.048*
If thing continue on their present course, we will soon experience a major ecological catastrophe	5.74 (1.60)	0.753	6.41 (0.85)	0.703	0.010*	6.48 (0.75)	0.753	6.33 (0.96)	0.666	0.541

Mean values in bold type correspond to the highest mean for each factor.

* indicates significant differences at *p-value* < 0.05

^a Factor and items from Roininen, Lähteenmäki and Tuorila (1999).

^b Items from Dunlap, Van Liere, Mertig and Jones (2000).

Table S1. Original and Clean labels of selected products.

Products	Original Label	Clean Label
Sausages	Egg white powder (rehydrated), water, sunflower oil, salt, aromatic plants, spices, flavourings, glucose syrup, dextrose, stabilizers: carrageenan E407, garrofin gum E410, xanthan gum E415, Konjac gum E425; acidity correctors: sodium acetate E262, Lactic acid E270; carrot powder, colours: radish concentrate, carotene E160a.	Potato protein (rehydrated), water, sunflower oil, salt, aromatic plants, spices, aromas, glucose syrup, dextrose, Plantago fibre (<i>Plantago psyllium</i>), lemon juice, alcohol vinegar, carrot powder, radish concentrate.
Burger	Water, pea protein (18%), rapeseed oil , refined coconut oil, aroma, smoke aroma, stabilizers: cellulose E460, methylcellulose E461, gum Arabic E414; potato starch, maltodextrin, yeast extract, salt, sunflower oil, dehydrated yeast, antioxidants: ascorbic acid E300, acetic acid E260; colour: beet juice concentrate E162; modified starch, apple extract, lemon juice concentrate.	Water, pea protein (18%), sunflower oil, refined coconut oil, aroma, smoke aroma, Plantago fibre (<i>Plantago psyllium</i>) and pea fibre, potato starch, maltodextrin, yeast extract, salt, sunflower oil, lemon extract, beetroot juice, modified starch, apple extract, lemon juice concentrate.
Vegetable steak	Rehydrated egg white , water, sunflower vegetable oil, salt, vegetable fibre, aromatic plants (0.6%), spices, spice extracts, flavourings, sugar, dextrose, thickeners: carrageenan E407, garrofin gum E410, xanthan gum E415; acidity correctors: sodium acetate E262, Lactic acid E270, potassium lactate E326, potassium chloride E508; food colour: radish, apple and blackcurrant concentrate; olives.	Rehydrated potato protein, water, sunflower vegetable oil, salt, aromatic plants (0.6%), spices, spice extracts, aromas, sugar, dextrose, Plantago fibre (<i>Plantago psyllium</i>), potato fibre, lemon juice, yeast extract, radish concentrate, apple and blackcurrant; olives.
Salami	Water, canola oil, stabilisers: garrofin gum E410, xanthan gum E415; wheat gluten (4.4%), pea proteins (2.7%), spices, maltodextrin, dextrose, sea salt, vinegar, beet concentrate, colour: paprika extract E160c; tomato concentrate, acidity regulator: calcium citrate E333.	Water, sunflower oil, potato fibre, buckwheat protein (4.4%), pea protein (2.7%), spices, maltodextrin, dextrose, sea salt, vinegar, red beet concentrate, paprika, tomato concentrate, vinegar extract.
Croquettes	Soy drink , spinach (20.1%), breaded (breadcrumbs [contains wheat], water, wheat flour , corn starch), wheat flour , tofu (7%) (water, soybeans , stabilizer: calcium sulphate E516), margarine, pine nuts , raisins, sea salt.	Rice drink, spinach (20.1%), breaded (breadcrumbs [contains wheat], water, wheat flour , corn starch), wheat flour , prepared from <i>Plantago psyllium</i> (water, Plantago fibre (6%)), margarine, pine nuts , raisins, sea salt.
Meatballs	Water, wheat gluten , seitan (18.2%), sunflower oil, fried tomato (tomato, olive oil, onion, leek, cane sugar, salt, garlic, acid: citric acid E330), tofu (9.1%) (water, soybeans , coagulant: calcium sulphate E516), almond , onion, brewer's yeast (contains wheat) , spices (contains celery) , sea salt, apple vinegar, corn starch, garlic, soy sauce (contains wheat) , thickeners: xanthan gum E415 and carrageenan E407; parsley, emulsifier: soy lecithin E322. Breeding: breadcrumbs (contains wheat) , soy milk .	Water, buckwheat protein, sunflower oil, fried tomato (tomato, olive oil, onion, leek, cane sugar, salt, garlic, lemon extract), prepared <i>Plantago psyllium</i> (water, Plantago fibre (6%)) (9.1%), onion, gluten-free brewer's yeast, spices, sea salt, apple vinegar, corn starch, garlic, pea fibre, parsley, potato protein. Breeding: gluten-free breadcrumbs, rice milk.
Quinoa spread	Water, tofu (water, soybeans , gelling agent: E511 magnesium chloride), sunflower oil, kale (10.3%), quinoa (4.3%), potato starch, onion, celery , potato powder, sea salt, agave syrup, lemon juice, garlic, herb mixture (0.67%), thyme (0.18%).	Water, cashews , sunflower oil, kale (10.3%), quinoa (4.3%), potato starch, onion, potato powder, sea salt, agave syrup, lemon juice, garlic, herb mixture (0.67%), thyme (0.18%).

Sobrassada	Cashews (33.7%), sunflower seeds (11.2%), sunflower oil, extra virgin olive oil (6%), miso (barley and soybean), paprika, salt and xanthan gum E415.	Cashews (33.7%), sunflower seeds (11.2%), sunflower oil, extra virgin olive oil (6%), miso (barley and soybean), paprika, salt and potato fibre.
Pizza	Common wheat flour , prepared natural strips (11%) [water, soy protein concentrate , sunflower oil, salt, aroma, spices (paprika, pepper, ginger, nutmeg, cardamom)], tomato sauce, tomato pulp, vegetable preparation (10%) (water, modified corn and potato starch, coconut oil, vegetable protein, salt, vegetable fibre, flavouring, stabilizer: tara gum E417; colour: calcium carbonate E170, b-carotene E160a; preservative: sorbic acid E200; vitamin B12), water, semi-dehydrated tomato (7.5%), rucola (2.5%), sunflower seed oil, extra virgin olive oil, salt, seasoned breadcrumbs [breadcrumbs (wheat flour, malted wheat flour, rapeseed oil , sunflower seed oil, yeast, dextrose, salt), extra virgin olive oil, onion, garlic, rosemary, parsley, thyme, salt, black olives], yeast, sugar, olive oil, thyme, garlic, onion, parsley, oregano, black pepper and basil.	Common wheat flour , prepared natural strips (11%) [water, pea protein concentrate, sunflower oil, salt, aroma, spices (paprika, pepper, ginger, nutmeg, cardamom)], tomato sauce, tomato pulp, vegetable preparation (10%) [(water, modified corn and potato starch, coconut oil, vegetable protein, salt, plantain vegetable fibre (<i>Plantago psyllium</i>) and potato, yeast extract, paprika, fermented dextrose, vitamin B12), water, semi-dehydrated tomato (7.5%), rucola (2.5%), sunflower seed oil, extra virgin olive oil, salt, onion, garlic, rosemary, parsley, thyme, salt, black olives], yeast, sugar, olive oil, thyme, garlic, onion, parsley, oregano, black pepper and basil.
Quinoa with vegetables	Cooked red bean, real quinoa (14%), water, tomato, corn, extra virgin olive oil, onion, red pepper, green pepper, lemon juice, vinegar, salt, brown sugar, spices and stabilizer: xanthan gum E415.	Cooked red bean, real quinoa (14%), water, tomato, corn, extra virgin olive oil, onion, red pepper, green pepper, lemon juice, vinegar, salt, brown sugar, spices and citrus fibre.