HSOA Journal of
Brain & Neuroscience Research

Short Review

Novel Food-Based Product: Short Review

Laura Emma Milani Marin*, Vincenzo Russo and Margherita Zito

Department of Business, Law, Economics and Consumption "Carlo A. Ricciardi", Iulm University, Milan, Italy

The steady increase in the global food demand requires alternative sources thus ameliorating the health of both the Earth and of human beings. In January 2018, the European Regulation on novel food (2015/2283) went into effect in all European countries, bringing new foods and ingredients (Regulation EU 2015/2283–Article 3). Among them are terrestrial invertebrates (e.g. insects and earthworms).

Despite a growing interest in terrestrial invertebrates as novel food, Western consumers have to cope with fears and taboos. Consumers' food choices can be driven not only by a deliberative reasoning but also by a temporary emotion [1]. These different dimensions should be assessed with different measurements: Direct techniques consisting of explicit questions to the subjects are suitable to measure the conscious part of opinions and attitudes; indirect techniques objectively measure the spontaneous part of the emotional reaction. Thus, the analysis of neuropsycho-physiological signals allows for the understanding of the mental processes that occur below the threshold of conscious awareness.

Since information and taste play a guiding role in modifying inclinations and attitudes towards novel food [2], it is essential to address specific and well targeted communication campaigns. This research aims to investigate possible communication strategies of novel food through labels.

To understand the complexity underlying food choice and novel food attitude, two studies were carried out. In Study 1, the main drivers in the food decision-making process were identified. Based on these results, in Study 2, two different food labels for crackers made with earthworm flour were designed. Applying a neurophysiological approach, we measured participants' neuropsychophysiological activation and behavioural response while watching food labels. A video on nutritional and ecological issues was shown to consumers to reduce aversion towards earthworms as food.

Study 1 was conducted with 1285 respondents (female = 647) aged between 18 and 29 years: These participants are in charge of shopping or share this responsibility in the household. This specific target composed by young adults has been chosen since they are future consumers and food decision makers. They fulfilled a questionnaire based on the Food Choice Questionnaire Findings [3] and findings indicate health and sensory dimensions as the major drivers in food choice. Particularly, at the individual item level, the average for "Makes me feel good" and "Keeps me healthy" are the highest, confirming the importance of the hedonic dimension and the attention to health in food choice among consumers. Whereas, "Tastes good" corroborates the relevance of this sense in food consumption.

On the basis of Study 1, for Study 2 two different food labels were created, identical in the design and product name (in Italian the term corresponds to "earthworm flour"), with two different claims. The first claim was referred to the product healthfulness, specifying that it was gluten-free and rich in protea. The second claim described the possibility to enhance the flavor of daily food. Therefore, the two labels were compared in terms of effectiveness in promoting the product. In order to deepen possible differences in terms of communication strategy, a comparison between genders was made. The lettering "earthworm flour" was deliberately designed to produce an unpleasant effect on respondents. Participants in this Study were 44 (females = 24) aged between 19 and 29 years. All participants were experimentally naïve. The sample was split in two groups. For one group, the "earthworm flour" label showed the claim related to the healthfulness of the product, and for the other group, the claim was related to the taste.

As for the experimental procedure, participants conducted the experiment individually, in a quiet room, with constant temperature and lighting. Participants were seated 60 cm away from the computer display of the SMI-RED250 eye movement recording system. Participants also wore the equipment for the recording of neuro-psychophysiological signals (EEG headset and skin conduction sensors) and a 5-point calibration was carried out using SMI iViewX software before starting the recording of eye movements. At the beginning, signals were recorded in a state of relaxation (baseline) to have a benchmark to measure the activation on the basis of the experimental stimuli. After this, participants saw stimuli, that is crackers with different labels and in different conditions. In a first phase, participants tasted the food without any information. Then, the image of the products with the label were shown to the participants and information was provided before the second taste with crackers made with grain flour but labelled as "Made with earthworm flour." After that, researchers showed participants an informative video on the advantages of alternative and sustainable food. Therefore, participants were asked to taste the crackers again while watching an image of the product with the label. The two products

***Corresponding author:** Laura Emma Milani Marin, Department of Business, Law, Economics and Consumption "Carlo A. Ricciardi", Iulm University, 20143 Milan, Italy, E-mail: laura.emma.milani@gmail.com

Citation: Marin LEM, Russo V, Zito M (2021) Novel Food-Based Product: Short Review. J Brain Neursci 5: 015.

Received: January 21, 2021; **Accepted:** February 09, 2021; **Published:** February 16, 2021

(labelled "earthworm flour"/"grain crackers") were randomly shown. Moreover, participants were asked to express their feeling toward the seen or tasted crackers, using the Self-Assessment Manikin (SAM) valence scale [4].

The data of Study 2 supported the effectiveness of the statement about nutritional qualities of the products on male participants, who tend to have a more positive reaction than female participants toward the novel product made with earthworm flour when the label's claim focuses on nutritional advantages. A significant difference was found between the two communication strategies, as the claim about healthfulness provoked a higher approach to the product, especially for males. A significant effect of the video with the information about the product was found, as it diminished the tendency to avoid the crackers made with earthworm flour.

Overall, the results highlight that communication can strongly influence consumers' reaction to novel food and suggest that the most effective strategy relies on healthfulness. Moreover, the results indicate that there are important gender differences in food acceptance to be taken into account when planning a communication strategy.

From a methodological point of view, this research highlights the importance of both self-reported measures and neuro-psychophysiological measurements to obtain complete information about consumers' emotional and cognitive responses.

A future comparison between cultures as variables influencing food choice motives and attitudes would provide a better understanding of the phenomenon. In order to reach more generalizable results, future research should try to replicate the same experiment with different types of meal (e.g., cricket meal) and food products (e.g., pastries), and study in greater depth the effect of the visual elements on the label (e.g., pictures of earthworms/flour). Finally, future research should have a larger sample size, in order to guarantee a higher reliability.

References

1. Zaltman G (2003) How customer Think. Essential Insight into the Mind of the Market. Harvard Business School Press: Harvard, MA, USA.
2. Verneau F, La Barbera F, Kolle S, Amato M, Del Giudice T, et al. (2016) The effect of communication and implict associations on consuming insects. An experiment in Denmark and Italy. Appetite 106: 30-36.
3. Steptoe A, Pollard TM, Wardle J (1995) Development of a measure of the motives underlying the selection of food: The Food Choice Questionnaire. Appetite 25: 267-284.
4. Sidowski JB, Johnson JH, Williams TA, Williams TA, Williams TA (1980) Technology in Mental Health Care Delivery Systems; Ablex Publishing Corporation: Norwood, NJ, USA, Pg no: 337.

Advances In Industrial Biotechnology | ISSN: 2639-5665

Advances In Microbiology Research | ISSN: 2689-694X

Archives Of Surgery And Surgical Education | ISSN: 2689-3126

Archives Of Urology

Archives Of Zoological Studies | ISSN: 2640-7779

Current Trends Medical And Biological Engineering

International Journal Of Case Reports And Therapeutic Studies | ISSN: 2689-310X

Journal Of Addiction & Addictive Disorders | ISSN: 2578-7276

Journal Of Agronomy & Agricultural Science | ISSN: 2689-8292

Journal Of AIDS Clinical Research & STDs | ISSN: 2572-7370

Journal Of Alcoholism Drug Abuse & Substance Dependence | ISSN: 2572-9594

Journal Of Allergy Disorders & Therapy | ISSN: 2470-749X

Journal Of Alternative Complementary & Integrative Medicine | ISSN: 2470-7562

Journal Of Alzheimers & Neurodegenerative Diseases | ISSN: 2572-9608

Journal Of Anesthesia & Clinical Care | ISSN: 2378-8879

Journal Of Angiology & Vascular Surgery | ISSN: 2572-7397

Journal Of Animal Research & Veterinary Science | ISSN: 2639-3751

Journal Of Aquaculture & Fisheries | ISSN: 2576-5523

Journal Of Atmospheric & Earth Sciences | ISSN: 2689-8780

Journal Of Biotech Research & Biochemistry

Journal Of Brain & Neuroscience Research

Journal Of Cancer Biology & Treatment | ISSN: 2470-7546

Journal Of Cardiology Study & Research | ISSN: 2640-768X

Journal Of Cell Biology & Cell Metabolism | ISSN: 2381-1943

Journal Of Clinical Dermatology & Therapy | ISSN: 2378-8771

Journal Of Clinical Immunology & Immunotherapy | ISSN: 2378-8844

Journal Of Clinical Studies & Medical Case Reports | ISSN: 2378-8801

Journal Of Community Medicine & Public Health Care | ISSN: 2381-1978

Journal Of Cytology & Tissue Biology | ISSN: 2378-9107

Journal Of Dairy Research & Technology | ISSN: 2688-9315

Journal Of Dentistry Oral Health & Cosmesis | ISSN: 2473-6783

Journal Of Diabetes & Metabolic Disorders | ISSN: 2381-201X

Journal Of Emergency Medicine Trauma & Surgical Care | ISSN: 2378-8798

Journal Of Environmental Science Current Research | ISSN: 2643-5020

Journal Of Food Science & Nutrition | ISSN: 2470-1076

Journal Of Forensic Legal & Investigative Sciences | ISSN: 2473-733X

Journal Of Gastroenterology & Hepatology Research | ISSN: 2574-2566

Journal Of Genetics & Genomic Sciences | ISSN: 2574-2485

Journal Of Gerontology & Geriatric Medicine | ISSN: 2381-8662

Journal Of Hematology Blood Transfusion & Disorders | ISSN: 2572-2999

Journal Of Hospice & Palliative Medical Care

Journal Of Human Endocrinology | ISSN: 2572-9640

Journal Of Infectious & Non Infectious Diseases | ISSN: 2381-8654

Journal Of Internal Medicine & Primary Healthcare | ISSN: 2574-2493

Journal Of Light & Laser Current Trends

Journal Of Medicine Study & Research | ISSN: 2639-5657

Journal Of Modern Chemical Sciences

Journal Of Nanotechnology Nanomedicine & Nanobiotechnology | ISSN: 2381-2044

Journal Of Neonatology & Clinical Pediatrics | ISSN: 2378-878X

Journal Of Nephrology & Renal Therapy | ISSN: 2473-7313

Journal Of Non Invasive Vascular Investigation | ISSN: 2572-7400

Journal Of Nuclear Medicine Radiology & Radiation Therapy | ISSN: 2572-7419

Journal Of Obesity & Weight Loss | ISSN: 2473-7372

Journal Of Ophthalmology & Clinical Research | ISSN: 2378-8887

Journal Of Orthopedic Research & Physiotherapy | ISSN: 2381-2052

Journal Of Otolaryngology Head & Neck Surgery | ISSN: 2573-010X

Journal Of Pathology Clinical & Medical Research

Journal Of Pharmacology Pharmaceutics & Pharmacovigilance | ISSN: 2639-5649

Journal Of Physical Medicine Rehabilitation & Disabilities | ISSN: 2381-8670

Journal Of Plant Science Current Research | ISSN: 2639-3743

Journal Of Practical & Professional Nursing | ISSN: 2639-5681

Journal Of Protein Research & Bioinformatics

Journal Of Psychiatry Depression & Anxiety | ISSN: 2573-0150

Journal Of Pulmonary Medicine & Respiratory Research | ISSN: 2573-0177

Journal Of Reproductive Medicine Gynaecology & Obstetrics | ISSN: 2574-2574

Journal Of Stem Cells Research Development & Therapy | ISSN: 2381-2060

Journal Of Surgery Current Trends & Innovations | ISSN: 2578-7284

Journal Of Toxicology Current Research | ISSN: 2639-3735

Journal Of Translational Science And Research

Journal Of Vaccines Research & Vaccination | ISSN: 2573-0193

Journal Of Virology & Antivirals

Sports Medicine And Injury Care Journal | ISSN: 2689-8829

Trends In Anatomy & Physiology | ISSN: 2640-7752