UNDERSTANDING CONSUMER FEARS ABOUT THE USE OF IRRADIATION OF MEAT PRODUCTS

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I. INTRODUCTION

Food neophobia is defined as a personality characteristic or peculiarity that distinguishes individuals based on their propensity to accept or reject new foods [1]. For instance, while scientists are delighted about such technological developments, many consumers prefer traditional production methods, for example, organic food, over approaches using genetic manipulation [2]. Irradiation can be a very effective alternative to ensure the microbiological safety of foods. Although considered safe and effective by the scientific community, this preservation technique was not initially accepted by consumers [3]. Considering production technologies are highly technical subjects, it stands to reason that consumers generally lack a clear knowledge of what these technologies represent [2,4]. Consumer attitudes towards a new technology applied to meat products also take into account of moral and ethical considerations, and are not only associated with personal benefits and health [3]. In this case, focus groups can be used to identify and exploit the main concerns of a topic that is new or not well understood. Therefore, this study was conducted to better understand the perception or, the fears, that people associate with the use of unconventional technologies, particularly, irradiation in food processing.

II. MATERIALS AND METHODS

A focus group study was conducted based on the selection of participants, using the criteria of regular consumption of meat products at least once a week, in order to discuss questions about the irradiation of meat products (- what is food irradiation? - What do you think about this technology? - What is its purpose? - What aspects would prevent or encourage you to consume irradiated food?). Four focus groups were carried out with participants from the Department of Food Engineering/Sao Paulo University and Brazilian Air Force Academy, both located in the city of Pirassununga, in the state of São Paulo/Brazil. Group 1 was composed by 7 women and one man. The participants were between 19 and 30 years old and were undergraduate or graduate students. Of the eight participants in group 2, 6 were women and two men, aged between 20 and 28 years. They were all students. In group 3, there were 6 women and 2 men aged 32 to 50 years. They were teachers, administrative personnel, or laboratory technicians. Group 4 was composed of 4 men and 4 women aged 30 to 45 years. They were all from the military armed forces. Focus groups are used in exploratory studies where data analysis is inductive and based on interpretation using the analysts' expertise and standards. Every discussion was transcribed, and open coding was done in accordance with the node hierarchy. New data codes were gradually revised, compared, and categorized in accordance with their similarity. The study was approved by the local Research Ethics Committee (N° 2.078.895).

III. RESULTS AND DISCUSSION

The results are presented through verbal statements (i.e., comments) done by the study's participants. Groups 1 and 2 demonstrated more knowledge about this technology than groups 3 and 4. Perhaps this is because groups 1 and 2 were formed by undergraduate or graduate students, who may have seen something about this technology in a university course. In group 3 only two participants had some idea about irradiation. In group 4 this technology was unknown to everyone

in the group. The definition given by one of the participants in group 1 was: “Radiation is the application of a range of rays that are not harmful in a certain amount.” Regarding the purpose of this technology, most of the groups related it to food conservation: “It attacks the microorganism by breaking down proteins or DNA” – Group 1; “It has a bactericidal action” – Group 2; “It is a technology used to sterilize foods” – Group 3. All groups were somewhat concerned about the consumption of irradiated foods. This fear was most pronounced in groups 3 and 4. Most participants indicated that the lack of knowledge about this technology is what hinders their acceptance. Group 3 and 4 was the most reluctant to accept irradiated foods: “I would be scared to give this kind of food to my children.” “I would not buy this type of food.” “I would be scared.” This demonstrates that the level of knowledge about technology truly affects consumer perception. In fact, providing information to consumers is one way to gain their trust. The study which investigated whether consumer preferences for beef showed that detailed information increased consumer acceptance of technologies applied to meat [5]. Knowledge generates beliefs that can be positive or negative, the weighted average between these beliefs results in the acceptance or rejection of the object [2], although the provision of information about a technology is often seen as a way to reduce consumer rejection, the amount of information and the way it is communicated have great influence on opinion formation [6]. According to the literature [7], after having spent more than 100 years questioning food irradiation, current consumers are more open to accepting irradiated food where it is available, together with an explanation about this technology.

IV. CONCLUSION

It was observed in this study that food irradiation still stimulates great fear in consumers. In the focus groups, participants who had some previous contact with this technology, there were better acceptance than in the consumers that did not have this contact. This demonstrates that for food irradiation to be accepted, consumers’ understanding of this technology needs to be genuinely worked out.

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