Advanced Biomedical Research and Innovation

Extended Abstract

Relationship between information destitution on food security and health risks during food consumption in the population of Piura (2018)

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Keywords: Risk Communication, Cognitive deficit model, Harmlessness

Abstract:

The latest research work is titled "Relationship between food safety knowledge deficiency and health risks in Piura population during food consumption (2018)." The report was made due to the growing statistics of coronary metabolic diseases registered in Peru, and in particular Piura, due to deficient patterns of food consumption. It is for this reason that the understanding of the danger that consumers have for food was examined and the information associated with the possible risk of contracting diseases. Another explanation for this report's creation is the lack of media reporting on food health, considering that more than fifty percent of the causes of death in Peru are due to diabetes and cardiovascular afflictions. This work should take into account other basic concepts such as innocuity, market habits, cognitive deficiency theories, risk communication, the rate of scientific literacy, the use of neurointelligence in the labeling of food packages as a way to confuse the customer with a better understanding of the nutritional specifics of the 'Public awareness of science' proposal means citizenship needs to provide a specific understanding of words and constructions that are adequate to understand a large number of daily events, including reading and understanding the label of a food package. The methodology used was observation, during their visits to the city's main supermarkets, to take a close look at the most common and frequent eating habits of the Piura population. Correlatively, a questionnaire was conducted using a "survey" file to contrast the similarities between what was found and what was answered in the interviews. Finally, to show the omissions of nutritional information on food labels, high-efficiency liquid chromatography applied a metabolic analysis to quantify metabolites with non-declared genotoxic potential in the foods sold by the companies. The results show that 39.7% and 14.7% of the participants requested replied that repeated intake of high carbohydrates (rice, yucca and potatoes) did not present a cardiovascular (diabetes) health risk. The first percentage reaction is with a categorical denial and the second one is a fallacy. Correlatively, this result is linked to the Piura population's average of 4442 kilocalories consumed per day, specifically the low physical activity index, in numbers, 270,39 kcal per day burning average plus 1572,74 kcal of basal metabolism give a daily expenditure of 1843,13 kcal. The present quantity associated with the daily 4442 kcal consumption manifest an excess of 2578, 87 nonburned kcal that is going to be transformed in fats and glucose in the blood; which is a cardiovascular risk factor for Piura people. On the other hand, it was found 9mg/kg of hydroxyl methylfurfural (carcinogenic substance) in chocolate bars samples which are not declared as a quality and innocuous standard at the nutrition facts.

The main conclusions of the study show that the relationship between disinformation on food security and health risks during food consumption in Piura´s population is deficient, mainly due to the little or no risk perception about the dangerous effects of some unknowable nutritional elements like the hidroximetilfurfural. Sequentially, it has been concluded that the excess of kilocalories consumed by the abundant intake of foods rich in carbohydrates, the lack of knowledge about the development of metabolic diseases due to the repetitive consumption of rice and other, are related to an incomprehensived information about nutritional facts and the high death rate from diabetes and other coronary diseases.

Correlatively, the most important future direction is to establish a new legislation in Indecopi (National Institute for the Defense of Competition and Protection of Intellectual Property) that require food companies to quantify carcinogenic metabolites with genotoxic potential as a quality parameter in the Peruvian Technical Standard as a warning and precaution for the protection of the citizens. Likewise, indicate the ways of conservation, preparation and storage of the food that is appropriate to its stability and safety in order to avoid health problems on the consumer. In addition, to declare mandatory that nutrients be quantified considering the maximum and permissible daily intake anthropometric variables of consumer.

Finally, to develope a virtual labeling (QR) attached to the food packaging that reports the potential damage of excessive consumption of nutrients as well as the benefits that those provide. Implement a section that stipulates the exact grams by weight, age, height, sex, metabolic activity recommended for each food as well as the maximum daily allowable intake, proportionally to the basal metabolism and daily caloric consumption. Likewise, deploying a three-dimensional pentagon on the labeling, pointing out the excesses of each product in a very visual and clear way. Implement education and food security campaigns that provide citizens with the necessary tools to differentiate between a harmful food and a healthy one. The proposal is aimed to an "upstream engagement and general public understanding of science" of the "lego" for the participation in public policies related to food safety.

Results:

Tables Nr 01: About Hidroximetilfurfural content in chocolate bars and banana chips

Ensayo	Resultados
Hidroximetilfurfural(mg/kg)	0.2

Table 1.1: Chemical analysis about HMF in banana chips

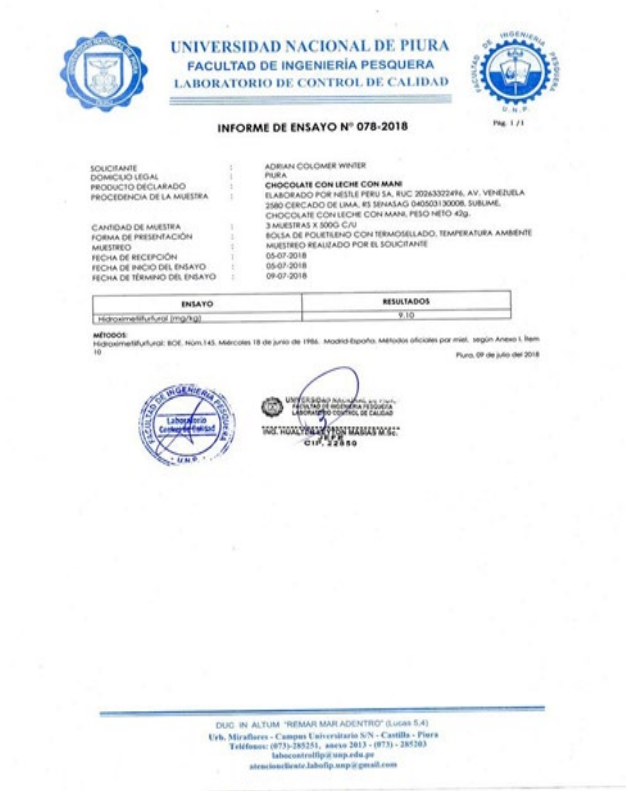
Source: National University of Piura. Analyzed by tandem mass spectrophotometer

Ensayo	Resultados
Hidroximetilfurfural(mg/kg)	9.10

Table Nr 1.2 : Chemical analysis about HMF in chocolate bars

Source: National University of Piura. Analyzed by tandem mass spectrophotometer

Interpretation: The analyzed chocolate milk sample does not quantify any genotoxic substances on the label. According to Table 1.2, it is shown that milk chocolate with peanuts has a hydroxymethylfurfural content of 9.10 mg / kg (See Annex 01). Similarly to the sample of chifles (fried plantains).



UNIVERSIDAD NACIONAL DE PIURA
FACULTAD DE INGENIERÍA PESQUERA
LABORATORIO DE CONTROL DE CALIDAD

INFORME DE ENSAYO N° 078-2018

SOLICITANTE	:	ADRIAN COLOMER WINTER
DOMICILIO LEGAL	:	PIURA
PRODUCTO DECLARADO	:	CHOCOLATE CON LECHE CON MANI
PROCEDENCIA DE LA MUESTRA	:	ELABORADO POR NESTLE PERU SA, RUC 20263322496, AV. VENEZUELA 2580 CERCADO DE LIMA, RS SENASAG 04050313000B, SUBLIME, CHOCOLATE CON LECHE CON MANI, PESO NETO 42g.
CANTIDAD DE MUESTRA	:	3 MUESTRAS X 500G C/U
FORMA DE PRESENTACIÓN	:	BOLSA DE POLIETILENO CON TERMOSELLADO, TEMPERATURA AMBIENTE
MUESTREO	:	MUESTREO REALIZADO POR EL SOLICITANTE
FECHA DE RECEPCIÓN	:	05-07-2018
FECHA DE INICIO DEL ENSAYO	:	05-07-2018
FECHA DE TÉRMINO DEL ENSAYO	:	09-07-2018

ENSAYO	RESULTADOS
Hidroximetilfurfural (mg/kg)	9.10

MÉTODOS:
Hidroximetilfurfural: BOE. Núm.145. Miércoles 18 de junio de 1986. Madrid-España. Métodos oficiales por miel, según Anexo I, Item 10

Piura, 09 de julio del 2018

C.I.P. 22850

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Annex - Image 01: Results of hydroximetilfurfural by tandem mass spectrophotometer

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