NEOPHOBIA NEGATIVELY IMPACT THE PREDISPOSITION TO CONSUME INSECTS

Danielle R. Magalhaes^{1*}, Ana F. A. Carvalho¹, Leticia A. Gonçalves¹, Marco A. Trindade¹

¹ Department of Food Engineering, University of Sao Paulo, Pirassununga, Brazil.

*Corresponding author email: d.magalhaes@usp.br

I. INTRODUCTION

Currently, to solve the problem of lack of protein sources, new foods are being introduced into the market, including edible insects, which show promise in nourishing the growing world population without compromising sustainability [1]. However, there are challenges that need to be overcome to introduce insects as a viable food option, which includes safety, techno-functional properties and consumers perspective [2]. The pretense of humans feeding out of insects relies on the acceptance of the population as a whole, through availability and familiarity to the product [3]. The majority of people view, because of aesthetic and psychological reasons, insects as harmful, dirty animals, pests [4]. However, Brazil is acknowledged worldwide for its "hotspot" status of biodiversity [5] and transfigures as a promising country to entomophagy [6]. The goal of this study is to investigate Brazilian consumer's perception in relation to neophobia associated with entomophagy. The study released in this short paper is the initial part of a project, which investigates the predisposition of individuals on eating hybrid meat products with addition of insect flour, in order to make consumption of insects acceptable/acquainted.

II. MATERIALS AND METHODS

This study applied two methodologies: food neophobia scale [7] was used to collect data in a 5-point Likert scale format to precisely investigate food neophobia; and, projective technique, was applied using the sentence completion test [8], in which participants finish a sentence instinctively justifying their opinion, in this case, about entomophagy. The Google.forms research management program was utilized to collect data, resulting in 469 responses. Using the software SPSS v.28 the outcomes of the two methods were associated using a chi-square distribution. In the application of statistics, the extreme points of the 5-point Likert scale were grouped, resulting in a 3-point scale (1- agree, 2-indifferent, 3- disagree). The qualitative data from the projective technique were grouped into three different quantitative levels of predisposition to entomophagy: 1- interested, 2- indifferent, 3- reluctant. This study was approved with the following CAAE number 65016922.0.0000.5422 by the FZEA/USP ethics committee.

III. RESULTS AND DISCUSSION

The association between the degree of agreement among Brazilian research subjects about neophobia and the degree of entomophagy predisposition is shown in Table 1. All results are statistically significant at the 0.001 level. In summary, our results corroborate previous studies [2,4] which indicates that an individual's inclination to consume insects decreases as their level of food neophobia increases. Specifically, in the first statement (Table 1), 70.7% of individuals who demonstrated an interesting predisposition to consuming insects agree "to constantly try new and different foods", on the other hand, only 33.6% of individuals reluctant to consume insects agree with of this statement. Regarding the second statement, which reads, "If I don't know what a food contains, I won't try it," 33.5% of those surveyed said they would be interested in consuming insects, while 61.6% of those who agreed with the statement said they would not. Lastly, respondents who say they eat practically everything (71.7%) are also interested to eat insects, while only 36% of individuals reluctant to entomophagy agree that they eat practically everything. These findings indicate that, in order to

ensure that the population has access to this source of protein in the future, measures that reduce the aversion to insects must be investigated. Studies [1, 3] recommend employing masked insects when preparing food and/or associating them with familiar flavors to reduce insect neophobia.

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Statement about neophobia	Likert	Predisposition to entomophagy		_ D	
	Scale	interested	indifferent	reluctant	Г
I am constantly trying new and different foods	agree	70.7a	55.9b	33.6c	
	indifferent	13.1b	12.4b	16.8a	~0.001
	disagree	16.2c	32.0b	49.6a	NO.001
If I don't know what a food contains, I don't try it	agree	33.5c	45.1b	61.6a	
	indifferent	17.3a	16.3a	10.4b	<0.001
	disagree	49.2a	38.6b	28.0c	
I eat practically everything	agree	71.7a	60.8b	36.0c	
	indifferent	7.9b	11.1a	5.6b	<0.001
	disagree	20.4c	28.1b	58.4a	

Table 1 – Association between neophobia and entomophagy predisposition in %.

Average values in the same row with different letters indicate significant difference (p < 0,001). (n=469).

IV. CONCLUSION

Understanding that there is a large percentage of Brazilian individuals who have food neophobia towards insects, we suggest that these be incorporated into hybrid meat products for better consumer acceptance, since the way insects are inserted (flour) in, for example, hamburgers and sausages, make their appearance, texture and flavor attenuated.

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