IMPACT OF SENSORY PERCEPTION AND EMOTIONAL RESPONSE ON ACCEPTABILITY OF MEAT AND CHICKEN VS MEAT/CHICKEN ANALOGUES

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I. INTRODUCTION

Replacing meat with processed products elaborated using plant proteins has become a promising strategy to reduce meat consumption [1]. “Meat analogues” are plant-based products with meat-like properties aimed to replace dietary meat. To successfully provide a “meat-like eating experience”, meat analogues should simulate both hedonic and sensory experiences undergone during meat consumption. This study was designed to compare meat *vs* meat analogues in relation to sensory and emotional responses and their impact on products acceptability.

II. MATERIALS AND METHODS

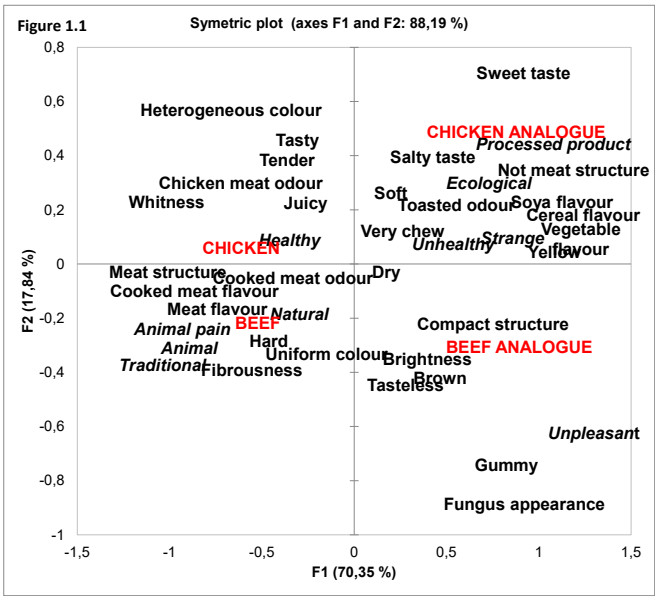
Four commercial products (beef, chicken, beef analogue-seitan and chicken analogue) were cooked (3 minutes per side for both analogues and chicken and 4 minutes per side for beef using an electric grill) and evaluated by 103 Spanish consumers (43.75% men, 56.3% women). Consumers reported samples acceptability (seven-point hedonic scale) and the sensory dimension was evaluated by using a CATA (Check all that apply) questionnaire including 33 sensory terms and 9 non sensory terms. The emotional response was collected by using the Esense25 procedure [2]. CATA data (sensory and emotional) was analysed by Correspondence Analysis (CA) and Principal Coordinates Analysis (including liking results) using XLSTAT software (v 2022.5.1).

III. RESULTS AND DISCUSSION

Different sensory maps were obtained for meat and meat analogues as they are in different quadrant of the CA plot (Figure 1.1). Compact structure, brightness, brown, tasteless, gummy and fungus appearance were associated to seitan. Sensory characteristics related to flavour, odour and structure meat/chicken were related to beef or chicken whereas vegetable/cereal/soya flavour, salty taste, not meat structure and processed product were more cited for chicken analogue. Most negative emotions (disgusted, tame, bored, and aggressive) were associated to seitan (Fig. 1.2). Consumption of beef and chicken mainly evoked positive emotions as pleasant, satisfied, secure or calm. Finally, chicken analogue evoked an emotional response opposite to beef analogue with emotions as mild or enthusiastic as highly cited. Brightness, tasty, tender, and juicy and the evocation of emotions as satisfied, pleasant, happy, mild, calm and secure had a positive impact on products acceptability (Fig. 2.1 and Fig 2.2.)

IV. CONCLUSION

The obtained sensory maps for these four commercial meat and meat analogues were clearly different reflecting that the similarity in relation to sensory characteristics has not yet successfully achieved. In addition, for the beef analogue (seitan) negative emotions were reported by consumers. The presence in meat and meat analogues of sensory characteristics as brightness, tasty, tender and juicy could contribute to improve liking and to evoke positive emotions.



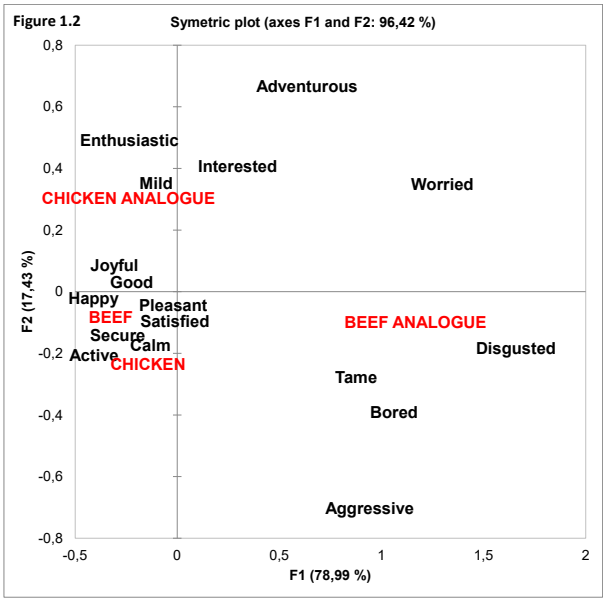
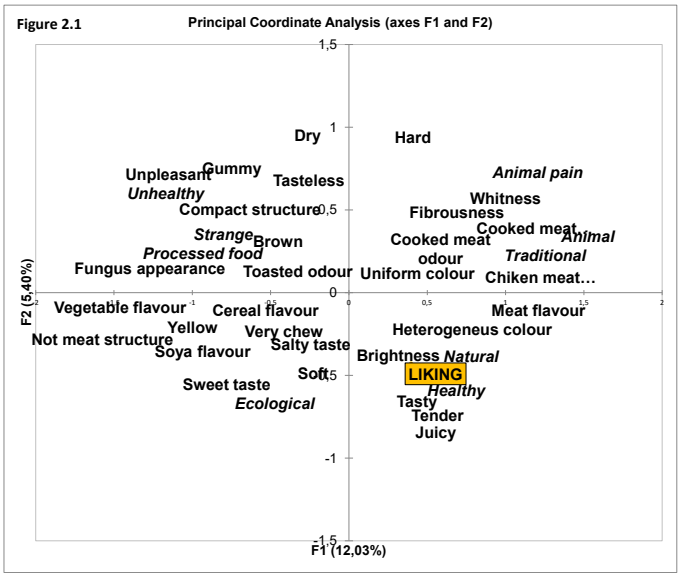


Figure 1. Correspondence Analysis plot (first two dimensions) using evaluated product (beef, breast chicken, beef analogue-seitan and chicken analogue) as rows and sensory terms and other characteristics (Figure 1.1) or emotions (Figure 1.2.) as columns.



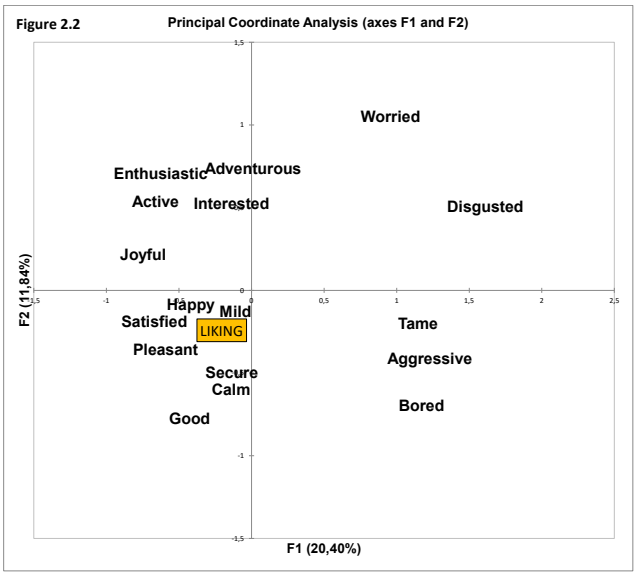


Figure 2. Principal Coordinate analysis plot (first two dimensions) based on CATA-sensory terms and other characteristics) (Figure 2.1) or CATA-emotions (Figure 2.1) and liking of four evaluated products (beef, breast chicken, beef analogue-seitan and chicken analogue).

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