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**Title:**

**Understanding the perceptual and behavioural barriers influencing the acceptance of plant-based tuna analogues**

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Fish demand is linked to unsustainable fishing practices, posing risks to the loss of marine biodiversity. Increasing attention to environmental issues has led to the development of plant-based fish formulations designed to mimic the taste, texture and appearance of fish. This category has experienced the fastest growth in sales of plant-based analogues, but several factors still hinder their consumption, including sensory characteristics.

The aim of this study was to evaluate consumer perceptions, liking and drivers of acceptance of plant-based canned tuna.

A sample of 165 adults balanced according to gender and age evaluated eight commercial samples: five formulated with different plant-based protein sources (e.g. textured soy, pea or wheat protein) and three animal-based control samples. Overall liking and sensory attributes characterizing food samples by means of CATA questionnaire were evaluated. Data about socio-demographics, food frequency consumption, food related lifestyles and personality traits were also collected. The results showed that samples ($F=92.96$; $p<0.001$) and age ($F=4.19$; $p=0.01$) had a significant effect on liking. All plant-based samples received low liking scores (<40), while those of animal origin were in general well appreciated (Ls-mean = 63.4 – 65.6). Principal Coordinate analysis showed that "Pink colour", "Tuna odour/flavour", "Oil odour/flavour" and "Saltiness" were drivers of liking, while «Unappealing appearance», «Legume/vegetable odour/flavour », "Off-flavours", "Bitterness", "Gumminess" had a negative impact. Two consumer clusters were identified: 'Dislikers of plant-based samples' (PB_Dislikers, 73%) and 'Likers of plant-based samples' (PB_Likers, 27%).

This study provides valuable insights into the sensory attributes of canned tuna analogues and underscores the importance of sensory optimization in the development of plant-based alternatives that meet consumer preferences.

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