



Development of a Novel Cape Anchovy (*Engraulis Capensis*)-Based Canned Food Product for Human Consumption: A Consumer-Led Approach

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Abstract

Despite seafood being increasingly recognised as an important part of global food security, landings of South Africa's anchovy are predominantly used for fishmeal production. It is evident that improved utilisation of the Cape anchovy (*Engraulis capensis*) as human food should become an important challenge. However, the food production sector is challenged by consumers' preferences. This research was conducted as part of a consumer-led new product development (NPD) study with interest in developing an anchovy-based food aimed at Xhosa women, who are mothers and live-in low-income SA communities. Qualitative research was used to obtain consumer insight for the design of a product concept.

Two focus groups and three overt non-participant observations were conducted among 33 target consumers. Consequently, a canned product containing anchovy with diced vegetables in a meat flavoured sauce was developed. Heat penetration tests were carried out to determine thermal process parameters. A process of 75 min at 118°C and lethality value of 4.14 was established, which ensured commercial sterility. This study also challenged the use of ungutted anchovy as raw material, which may be a promising approach to reduce fish waste and exclude labour-intensive processing steps. These treatments (Treatment 1 = gutted, Treatment 2 = ungutted) were analysed for microbiological safety, nutritional composition, and consumer acceptability. Both treatments can claim for source of protein, very high in omega-3, source of dietary fibre, and low in total fat. Microbiological results were below SA specification limits, rendering both treatments safe for consumption.

Affective testing using the 9-point hedonic scale and the simple paired preference test established acceptance and preference towards both treatments. When panellists (n=78) could select "yes" and "no", rather than only pick one, 95% and 78% panellists indicated that their children would like T1 and T2, respectively. Liking was significantly higher ($P \leq 0.05$) for T1 regarding taste, colour, smell, and overall liking than for T2. However, there was no significant preference for one treatment over the other ($P > 0.05$). Hence, Cape anchovy has the potential to enter the domestic market as a novel ready-to-eat canned product for human consumption, whilst supporting sustainability and food security issues.

Biography: Hamlin Basson

Hamlin Basson was an inquisitive child and has been an avid fan of science since she first held a microscope. Hamlin has recently been appointed as Food Scientist at Aquion (Pty.) Ltd. Processing Facility in Hermanus where she specialises in new product development and quality of aquacultured abalone. Hamlin has completed a BSc degree in Food Science and is currently working towards her MSc degree at Stellenbosch University. Hamlin is motivated daily by her talented and inspiring colleagues and friends. In her free time, Hamlin enjoys hikes and wine tastings.