

# WHITEFISH



CAN CONSUMERS TELL  
THE DIFFERENCE?



Contract Testing Inc.



# INTRODUCTION

Whether you are bringing a fish product to market or putting one on the menu, the choice of species may be the most basic of questions. While market prices are a key factor, and popularity, awareness, and environmental sustainability certainly might drive sales – what about taste preferences? Does the average fish consumer prefer the flavour of cod over haddock – can they tell the difference? Does the texture of tilapia even compare to the mouth-watering tenderness of sole?

This research aims to explore whether there are perceivable differences between popular white fish species. In its simplest preparation, without breading or batter, can certain species of fish stand on their own with distinct flavour, texture, and degrees of likeability?

## MATERIALS AND METHODS

This research sampled fifty females from the Greater Toronto Area between the ages of 25 and 59, all of whom do the majority of shopping and cooking in their household and who consume white fish at least once every 2 weeks. Fresh fish samples were sourced from our local seafood supplier and prepared in our test kitchen. They were baked 'en papillote' with a light seasoning of salt, pepper, and lemon and served blind in 2-ounce portions.

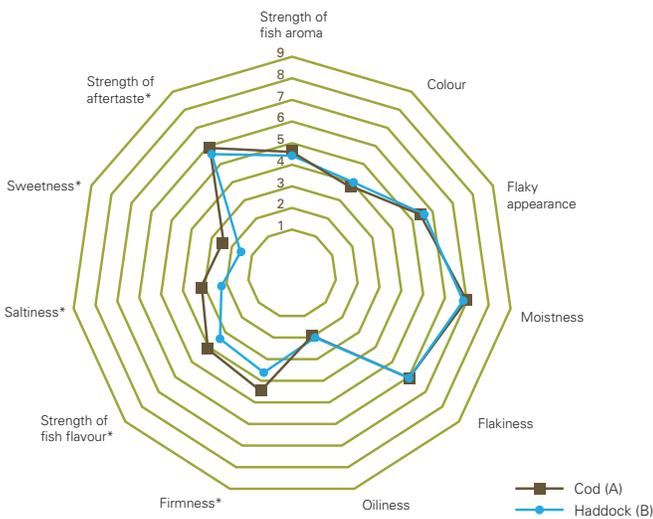
The study was comprised of two blind paired comparison tests: one between two meatier fish – cod and haddock; the other between two flat fish – sole and tilapia. Half of the respondents started with the cod and haddock pair (in rotated order), while the other half began with sole or tilapia.

Respondents were first directed to look at and smell the fish sample and to evaluate the aroma and appearance. Then after tasting the fish sample, they answered a series of questions relating to the flavour and texture. The questions were a combination of 9-point hedonic scales and 9-point intensity scales, followed by preference, awareness of the type of fish they tried, and some general usage questions.

## RESULTS

### *Cod versus Haddock*

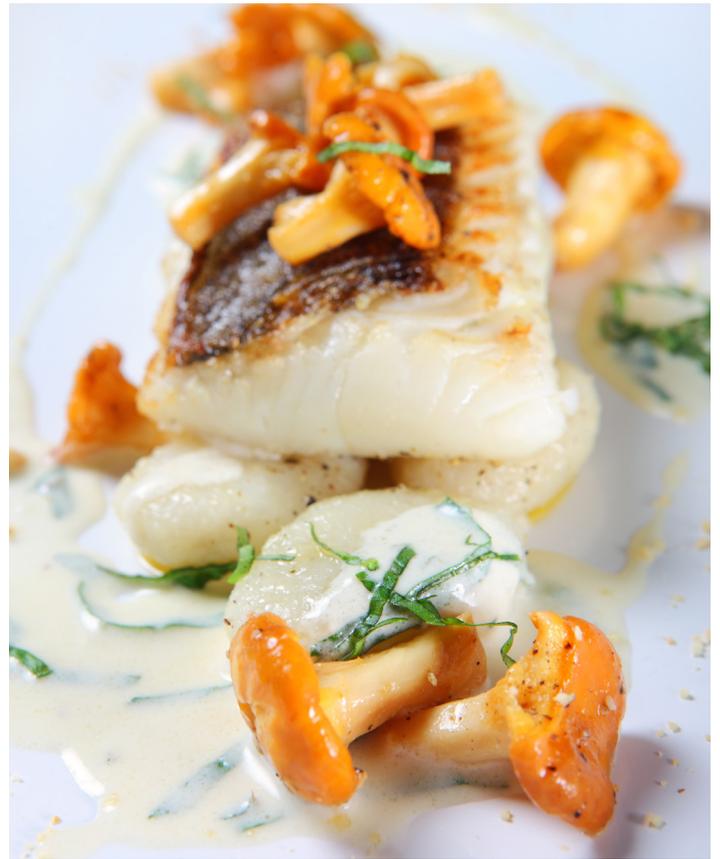
Figure 1 Cod vs Haddock



Of the eleven intensity attributes used to profile the fish, five were significantly different at the 95% confidence level (Fig. 1). Differences between the fish were primarily flavour related. Cod was significantly sweeter, saltier, and had a stronger fish flavour and aftertaste. The only textural difference was firmness, with Cod being significantly firmer than Haddock.

Cod scored significantly higher than Haddock on Overall Liking, with mean scores of 7.12 and 6.30 respectively. Cod was also significantly preferred – garnering 82% of the preference vote, and had significantly higher mean ratings on the hedonic scales for overall flavour, overall texture, and pleasantness of the aftertaste.

So in the Cod versus Haddock match up, differences were perceived – primarily on factors related to taste/flavour, and the clear winner was Cod.

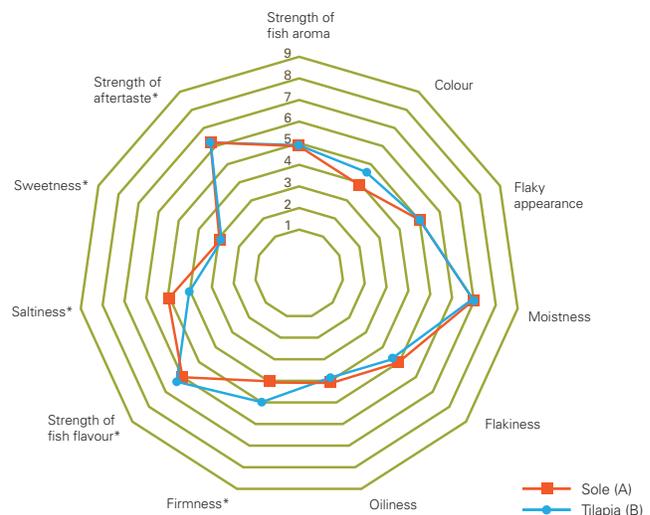


### *Sole versus Tilapia*

Profile differences were less evident between Sole and Tilapia than Cod and Haddock. Of the eleven intensity attributes, only three were significantly different at the 95% confidence level (Fig. 1): Colour and Firmness (Tilapia was darker and firmer), and Saltiness (Sole was saltier).

Given the similar product profiles, it is not surprising that testers preferred them equally, and there were no significant differences on any measures of liking.

Figure 2 Sole vs Tilapia



## FISH SPECIES RECOGNITION

Following the tasting and evaluation of each product, respondents were asked whether they could identify the fish they just tried. Even though the testers were regular fresh fish consumers, the majority did not know or were incorrect in their response (Table 1).



Table 1 Recognition of Fish Species

|  | Cod | Haddock | Sole | Tilapia |
|--|-----|---------|------|---------|
| <b>% that claimed to know what fish species they tried</b>     | 26% | 24%     | 18%  | 18%     |
| <b>% that correctly identified the fish species they tried</b> | 4%  | 6%      | 10%  | 15%     |

## CONCLUSIONS AND IMPLICATIONS

The objective of this exploratory research was to gain a basic understanding of whether fish on its own, without breading or batter and only minimal seasoning, is differentiable by species. We narrowed this objective to pairings of popular white fish that were considered similar enough in appearance, market price, and overall perceived quality. The test also focused on female consumers residing in one geographical area – Greater Toronto, and did not include segmentation based on ethnicity or other demographics.

Within this framework it was revealed that there are differentiable differences in the sensory profile and likeability of the meatier types of fish we tested, but much less so with the flat fish. Why was there greater flavour differentiation between the Cod and Haddock samples than the flatter Sole and Tilapia samples? Is this because there is more surface

exposed to the palette in each bite? Or is this simply because Cod is a much more flavourful fish than Haddock? If we expanded this test to include other sets of meatier fish and flat fish would we expect similar results? These are all considerations for further exploratory research.

Further research might also explore whether similar differences and preferences are revealed in other geographic markets, or among specific ethnic groups who may have higher consumption of specific fish types. And sampling of the other half of the consumer base – males, might also reveal different degrees of differentiation or likeability. But for now, we have shown that there are detectable differences in the sensory profile of white fish species differences which in some cases such as Cod, impact preference and likeability. Consumers may not be experts in gastronomy, but decades of

blind sensory testing have shown us that consumers can detect differences and they know what they like. All of this can be effective input into your business decisions...and there's nothing fishy about that.

For questions about this research, or how you can leverage consumer taste buds in your business, contact Andrew Scholes at [andrew.scholes@contracttesting.com](mailto:andrew.scholes@contracttesting.com).

*Contract Testing Inc. is an industry leader in sensory evaluation and consumer product testing. We are the only sensory evaluation and consumer product research company with corporately managed test sites in both Canada and the United States. With over 25 years of experience, we are innovators in testing with consumers across all major food, beverage and household and personal care categories.*



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