Improved seafood sensory quality for the consumer

Sensory characteristics of different cod products
and consumer acceptance

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Academic Dissertation

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ABSTRACT

Health benefits of fish consumption are well known. In spite of this, fish consumption in many European countries is below recommendations provided by public health organisations. Sensory quality has a strong influence on consumers buying intention. Consumers have different experiences and liking of seafood, and their choices may depend on various factors related to their attitudes, habits and demographics. The aim of this project was to define sensory attributes of different products of cod, and study the process of analysing and interpreting sensory results. Further, the aim was to study consumer liking of different types of cod products related to sensory characteristics and in terms of consumer attitudes, demographics and test settings.

The studies performed within this thesis provided detailed information about the sensory characteristics of different cod products. The Quality Index Method (QIM) developed to evaluate freshness of raw cod fillets described sensory attributes at different stages of freshness and could be applied to estimate the freshness quality. Sensory evaluation of different cod products demonstrated how different treatments prior to catch/slaughter, storage method and storage time affected the sensory characteristics. The sensory schemes can be used as a basis in e.g. storage studies, product development or as a basis for sensory methods for the fish industry in quality control. The detailed sensory description of the products may also be used in marketing and to teach people, consumers and staff in quality control to evaluate the sensory quality of cod. In the analysis of sensory data the program PanelCheck proved to be a user friendly tool to study results of short term projects but signal to noise analysis was preferable to study results of extensive datasets. Consumer test results depended upon the test setting. Consumers tasting cod in a controlled setting gave lower overall liking scores as compared to consumers tasting cod in a more natural setting. This comparison of different test settings may guide in decision making when planning consumer testing of fresh fish products. Consumers liking differed between countries, but segments of consumers with even greater liking differences were found within each country. The segments were also different with regard to fish consumption frequency and attitudes. Relating the consumer liking to the sensory characteristics of the cod products showed which sensory characteristics were preferred by each segment. This link between sensory characteristics, consumer liking, attitudes and habits will provide important information for marketing of seafood and for authorities intending to increase fish consumption.

Keywords: cod products, sensory evaluation, data analysis, consumer tests, fish consumption

ÁGRIP (ABSTRACT IN ICELANDIC)

Jákvæð áhrif fiskneyslu á heilsu fólks eru vel þekkt. Þrátt fyrir það er fiskneysla oft minni í Evrópu en ráðlagt er af heilbrigðisyfirvöldum. Skynræn gæði (útlit, lykt, bragð og áferð) hafa mikil áhrif á innkaup neytenda. Neytendur hafa ólíka reynslu og smekk fyrir sjávarfangi og val þeirra getur verið háð mismunandi þáttum, svo sem viðhorfum, venjum og lýðfræðilegum þáttum. Markmið verkefnisins var að skilgreina skynræna gæðaeiginleika mismunandi þorskafurða og bera saman aðferðir við greiningu og túlkun niðurstaða úr skynmati. Markmiðið var einnig að kanna smekk neytenda fyrir mismunandi þorskafurðum tengdum mismunandi gæðaeiginleikum og með hliðsjón af viðhorfum, lýðfræðilegum þáttum og staðsetningu neytendaprófa.

Úr rannsóknunum verkefnisins fengust ítarlegar upplýsingar um gæðaeiginleika mismunandi þorskafurða. Einkunnaskali (QIM) sem þróaður var til að meta ferskleika hrárra þorskflaka lýsti gæðaeiginleikum á mismunandi stigum ferskleika. Skynmat á mismunandi þorskafurðum sýndi hvernig mismunandi meðhöndlun fyrir veiði/slátrun, geymsluaðferð og geymslutími hafði áhrif á gæðaeiginleika. Einkunnaskalar sem þróaðir voru í verkefninu geta nýst sem grunnur í t.d. geymsluþolsrannsóknum, vöruþróun eða sem grunnur fyrir einkunnaskala fyrir gæðaeftirlit í fiskiðnaði. Einnig má nota lýsingar á gæðaþáttum þorskafurða í markaðssetningu og til að kenna fólki, neytendum og starfsfólki í gæðaeftirliti að meta gæðaeiginleika þorsks. PanelCheck er notendavænt forrit til að skoða niðurstöður styttri rannsókna en Signal to noise greining til að skoða niðurstöður stærri verkefna. Niðurstöður neytendakannanna voru háðar því hvar könnunin fór fram. Neytendur sem smökkuðu þorsk við staðlaðar aðstæður gáfu lægri einkunnir samanborið við neytendur sem smökkuðu í heimahúsi við eðlilegar aðstæður. Þessi samanburður á neytendakönnun í ólíku umhverfi getur nýst þegar skipuleggja á neytendaprófanir á ferskum fiskafurðum. Smekkur neytenda var mismunandi milli landa, en þó voru hópar neytenda með ólíkan smekk, fiskneyslu og viðhorf innan hvers lands sem voru sambærilegir hópum í öðrum löndum. Með því að skoða smekk neytenda með hliðsjón af gæðaeiginleikum þorskafurðanna fengust upplýsingar um hvaða gæðaeiginleikar höfðuðu mest til mismunandi hópa neytenda. Með því að tengja saman upplýsingar um skynræna gæðaþætti, smekk neytenda, viðhorf og venjur fást mikilvægar upplýsingar fyrir markaðssetningu sjávarafurða og heilbrigðisyfirvöld sem stefna á að auka fiskneyslu.

Lykilorð: þorskafurðir, skynmat, gagnaúrvinnsla, neytendapróf, fiskneysla