

5 Star Tilapia Grading System



Co-Authored :

Dr. Kevin Fitzsimmons and Tomi Hong

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5 Star Tilapia Grading System



Purpose:

- To address the #1 concern – “Off-Flavor”

Intended For:

- Producers
- Importers
- Retailers
- Food Services – Restaurants
- Researchers.
- Consumers



Tilapia Market in US Today

Well received - Many Tilapia Recipes



Famous Restaurant



- Parmesan-Crusted Tilapia
- Filet of tilapia lightly coated
- with Parmesan and sautéed
- with capers, tomatoes, sage
- and lemon butter.
- Served with crispy red potatoes.



Tilapia's Famous Fan

- Tilapia's #1 kitchen in the US – the White House.

“ I am looking for a new chef for the White House – **must be able to prepare Tilapia and tortilla taco.** ”

- Michelle Obama.

Why Chefs Favor Tilapia

- On the other hand, tilapia is *so mild that anyone can like it*, and it can be more interesting than chicken (or at least much more moist, and theoretically healthier). It's easy to pick flavors that go well with it, too--it's as simple as trying to match a flavor to French bread. For all of these reasons, *tilapia is a logical choice for any menu*, from a restaurant's perspective.
 - *Foodie Universe's Restaurant Review*

Tilapia for Sushi

1 Premium fish fillet



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In surveys, 80% of "Red Snapper" sushi sold in the US is actually Tilapia.

Reasons:

- **Price Ratio** - \$ 8 vs \$ 1 /lb (seasonal)
- Taste between the two are similar
- Tilapia is as good as any other fillet

What is the Chefs' #1 Concern

Access to consistent, high quality ingredients is paramount.

Tilapia sporadically contains an **Off-Flavor** taste despite freshness.



Market Impacts of Off-Favors

- For importers, a bad lot may be unsellable and hurt established business relationships.



Market Impacts of Off-Favors

- For retailers and food services, a single bad experience will drastically reduce repeat business



Market Impacts of Off-Favors

- For the Tilapia industry, bad experiences lead to negative perceptions of the fish and can lead to reduced overall demand and *Lower Price*.



5 Star Tilapia off-Favor Grading System

Commonly non-scientific solution by major producers.

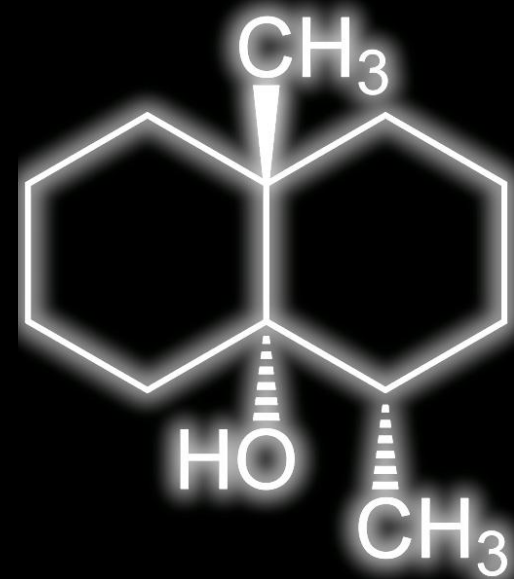
- Human Tasters to test each lot – a subjective approach

5 Star Tilapia off-Favor Grading System.

- A scientific and quantitative method for a common problem.

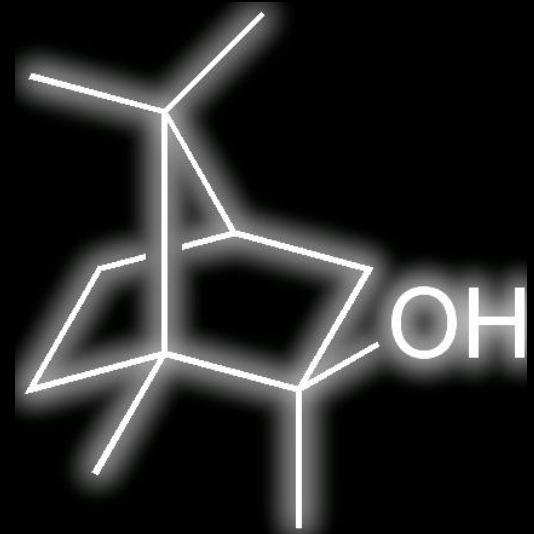
Key off-Flavor Compounds – [1]

- Geosmin
 - Contributes earthy flavor
 - Cyanobacterial byproduct
 - Detectable in air and water by humans at ... *5-10 ppt*
 - Detectable in fish flesh by humans at ... *250 ppt*
 - Concentrated in skin and dark muscle



Key Off-Flavor Compounds – [2]

- 2-Methylisoborneol (MIB)
 - Contributes musty flavor
 - Cyanobacterial byproduct
 - Detectable by in air and water by humans at ... *15-20 ppt*
 - Detectable in fish flesh by humans at ... *100 ppt*



Detection of Geosmin and MIB

- Gas Chromatography-Mass spectrometry
 - Headspace-Solid-Phase Micro-Extraction
 - LOD ~ 2 ppt
 - Solid-Phase Micro-Extraction
 - LOD ~ 2 ppt
 - Selective Ion Monitoring
 - LOD ~ 5 ppt
- Any approach that can achieve at least 10 ppt LOD is permissible



Sampling Methodology

- Single source lot processing
 - 100 grams each from 10 fillets/lot
 - Tissue homogenized and tested as a single sample
- Multi source lot processing
 - Each source sampled and tested independently
 - Lot graded based upon highest detected level of Geosmin and MIB



5 Stars ★★★★★ Grading System

- ★★★★★ 5 Stars Level

Off-flavors below detectable levels for humans

- Geosmin < 250 ppt
- And MIB < 100 ppt



5 Stars Grading System

- ★★☆☆★ 3 Star Level

Off-flavors at levels at which some humans may detect

- Geosmin < 500 ppt
- And MIB < 200 ppt



5 Stars Grading System

- ★★☆☆★ 1 Star Grade

Off-flavors detectable
by most people

- Geosmin > 500 ppt
- or MIB > 200 ppt →

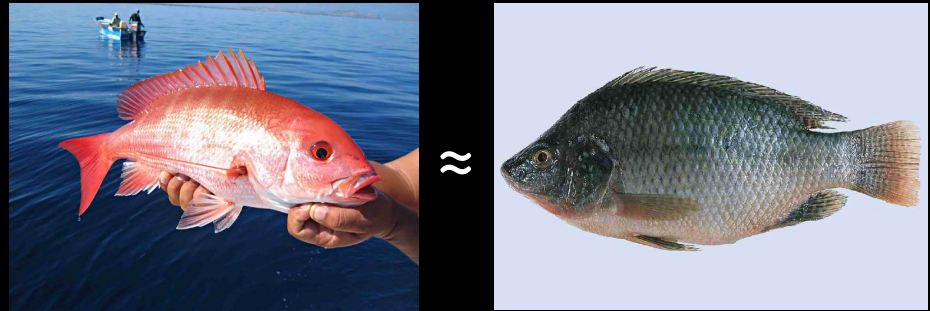


★★★★★ Sushi Grade

- Fillets must be kept at
-20°C for > 168 hours,
or -35°C for > 15
hours

prior to sale (US FDA
protocol)

- Fillets must
maintained < -10°C
at at times during
transport



In surveys, 80% of "red
snapper" sushi sold in the US
is actually Tilapia

5 Stars Grading System Testing Program Requirements [1]

- Annual Audits by ISO 65 accredited independent 3rd party CB, including sampling and lab testing
- Lab testing must be performed by an ISO 17025 accredited 3rd party Lab.
- Quarterly and Semi-annual monitoring audit.



5 Stars Grading System Testing Program Requirements [2]

- Records must be maintained for 5 years
- Records must be retrievable for verification within 24 hours of a request
- Not a substitute of Safety Certification.
- Works in conjunction of Food Safety regulations and certification to create better Quality recognition.



5 Star Tilapia Grading System



Purpose:

- To differentiate the best Tilapia for #1 concern – “Off-Flavor”

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- Food Services – Restaurants
- Researchers.
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5 Star Grading System – Release Time Tables

Certification Implementation Time Tables

- Announcement – April, 2011
- Expert and Public Comments (Welcomed) – May, 2011
- Pilot Certifications – June-September, 2011
- Public Certifications – October, 2011

Talipia International Cooking Contest

- 1st 5 Star certified Talipia International cooking contest
- Scheduled at Nov, 2011.
Sponsored by:
CAPPMA.
- Location – Hainan (pending)
- Further Information to be released.





Thank you!
Question?
Please Contact us at:

inquiries@amerisci.com
elaine_chang@amerisci.com

China: 21-6426-2517

US: 202-870-8980

