

Fish Species Determination Report

Client: WKRG-TV
Mobile, AL

Therion International, LLC

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Date received: January 17, 2007

Samples received: 10

Sample type: fresh & cooked

Target species: Grouper

Project number: 20269

Methodology:

DNA was extracted from tissue samples using a modified organic extraction procedure. The DNA was amplified by the polymerase chain reaction (PCR™) using universal primer pairs to the mitochondrial cytochrome *b* gene. The amplified DNA was purified, quantified and sequenced. The sequences obtained from the samples were subjected to a BLAST search of the database at the National Center for Biotechnology Information (NCBI) of the National Institutes of Health (NIH) to determine likely species of origin. Sequences were also compared directly to those produced in-house from a known *Epinephelus akaara* (whole fish, brown marbled grouper standard).

The Expect value (E) and the percent homology to the standard are determined in the Blast analysis. The E value is a measure of the random background noise that exists for matches between sequences. The closer the E value is to "0" the more "significant" the Blast call (i.e. an E value of "0" would be considered a match).

Table 1. DNA sequencing results

SITE	Blast Call	Blast E value	% to standard	Standard E value	Common Name
Blue Gill Restaurant	<i>Lethrinus laticaudis</i>	0.0E+00	66%	8.0 e-75	emperor fish
Spring Hill Seafood	<i>Tetrapturus sp</i>	6.0 e-89	66%	1.0 e-77	marlin
Roussos's Restaurant	<i>Lutjanus sp.</i>	2.0 e-104	68%	4.0 e-73	snapper
Maria's Fresh Seafood	<i>Epinephelus areolatus</i>	7.0 e-113	83%	2.0 e-105	grouper
Felix's Fish Camp	<i>Pangasius sutchi</i>	0.0E+00	65%	1.0 e-69	catfish
Hall's Seafood Restaurant	<i>Lutjanus sebae</i>	4.0 e-91	64%	2.0 e-62	red snapper
Giggling Grouper Restaurant	<i>Lethrinus sp</i>	7.0 e-133	67%	5.0 e-87	emperor fish
Original Oyster House	<i>Pangasius sutchi</i>	0.0E+00	64%	8.0 e-64	catfish
Mudbugs Seafood	No Result				
Wing's Sports Grille	<i>Pangasius sutchi</i>	0.0E+00	64%	5.0 e-69	catfish

Summary:

These results show that only the sample from Maria's Fresh Seafood is confirmed to be grouper. The remaining samples were catfish (Felix's Fish Camp, Original Oyster House & Wing's Sports Grille), snapper (Roussos's & Hall's Seafood), emperor fish (Blue Gill Restaurant & Giggling Grouper) or marlin (Spring Hill Restaurant). No results were produced from the Mudbugs Seafood sample.

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Mary Maltbie

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Managing Member, Operations

Nancy J Casna

Report Date: January 29, 2007

Table 1. DNA sequencing results from red snapper primers

SITE	Blast call	E value	% to Rs	E value	% to Ls	E value	Species call
Sample A	none						
Sample B	<i>L. campechanus</i>	4.0E-93	85%	7.0E-73	39%		red snapper
Sample C	<i>L. campechanus</i>	3.0E-76	84%	4.0E-75	28%		red snapper
Sample D	<i>L. campechanus</i>	1.0E-114	86%	4.0E-82	82%	6.0E-44	red snapper
	<i>Trachurus genus</i>	2.0E-60	8%		none		horse mackerel
	<i>L. campechanus</i>	4.0E-60	84%	2.0E-66	26%		red snapper
	none		74%	4.0E-05	29%		
	<i>L. campechanus</i>	1.0E-119	92%	4.0E-97	80%	1.0E-41	red snapper
	<i>L. campechanus</i>	2.0E-99	79%	1.0E-41	90%	2.0E-92	lane snapper

Table 1. DNA sequencing results

SITE	Blast call	E value	% to standard	E value	Species call
Sample A	<i>Epinephelus areolatus</i>	1.0 e-104	85%	2.0 e-104	grouper
Sample B	<i>Epinephelus areolatus</i>	6.0 e-93	84%	4.0 e-95	grouper
Sample C	<i>Epinephelus areolatus</i>	2.0 e-103	85%	2.0 e-104	grouper
Sample D	<i>Epinephelus areolatus</i>	3.0 e-106	85%	2.0 e-104	grouper