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SUPPLEMENTARY MATERIAL

A retail market survey on fish fraud from Southern Italy using DNA barcoding

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Supplementary Table 1. Summary results for analyzed samples: column 1, Sample number; column 2, commercial name; column 3, scientific name for declared species; column 4, scientific name according to DNA Barcode analysis, column 5, sequence identity percentage by NCBI; column 6, sequence identity percentage by BOLD System; column 7, YES for inconsistent results between declared and detected species, NO for consistent results; column 8, product category.

Sample No	Commercial name	Scientific name	Species identified	Blast NCBI (% identity)			BOLD system (% identity)		Mislabeling	Product type
				CYTB	COI-1	COI-2	COI-1	COI-2		
1	European plaice fillets	<i>Pleuronectes platessa</i>	<i>Pleuronectes platessa</i>	nd	99.84	-	99.84	-	NO	fillet
2	European breaded anchovies	<i>Engraulis encrasicolus</i>	<i>Engraulis encrasicolus</i>	99.77	-	-	-	-	NO	canned sample
3	European hake fillet	<i>Merluccius merluccius</i>	<i>Merluccius hubbsi</i>	98.88	100	-	100	-	NO	fillet
4	Alaska pollock fillet	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	98.29	100	-	100	-	NO	fillet
5	Alaska pollock sticks	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	99.98	-	99.95	-	NO	fresh fish cubes
6	Blue grenadier sticks	<i>Macronus novaezelandiae</i>	<i>Macronus novaezelandiae</i>	85.41	-	100	-	100	NO	fresh fish cubes
7	Alaskan pollock fillet	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	nd	100	-	100	-	NO	fillet
8	Alaska pollock fillet (breaded fish)	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	nd	99.84	-	100	-	NO	flavoring product
9	Haddock	<i>Melanogrammus aeglefinus</i>	<i>Melanogrammus aeglefinus</i>	nd	100	-	100	-	NO	fillet
10	Alaska pollock fillet sticks	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	99.69	-	100	-	NO	fillet
11	Alaskan pollock fillet	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	99.28	-	100	-	NO	fillet
12	Alaskan pollock fillets with potatoes and rosemary	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	99	-	100	-	NO	flavoring product
13	Squid	<i>Loligo opalescens</i>	<i>Prionace glauca</i>	-	-	99.63	-	100	YES	fresh fish cubes
14	Swordfish	<i>Xiphias gladius</i>	<i>Melanogrammus aeglefinus</i>	nd	99.84	-	100	-	YES	nuggets
15	Swordfish	<i>Xiphias gladius</i>	<i>Melanogrammus aeglefinus</i>	-	99.39	-	100	-	YES	nuggets
16	Swordfish	<i>Xiphias gladius</i>	<i>Melanogrammus aeglefinus</i>	-	98.93	-	100	-	YES	nuggets

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17	Swordfish	<i>Xiphias gladius</i>	<i>Melanogrammus aeglefinus</i>	-	100	-	100	-	YES	nuggets
18	Traditional sushi-Atlantic salmon	<i>Salmo salar</i>	<i>Salmo salar</i>	98.6	-	100	-	100	NO	sushi
19	Traditional sushi-Atlantic salmon	<i>Salmo salar</i>	<i>Salmo salar</i>	98.6	-	100	-	100	NO	sushi
20	Traditional sushi	<i>Litopenaeus vannamei</i>	<i>Litopenaeus vannamei</i>	-	-	99.84	-	100	NO	sushi
21	Marinated European anchovy fillets	<i>Engraulis encrasicolus</i>	<i>Engraulis encrasicolus</i>	98.51	-	-	-	-	NO	flavoring product
22	European anchovy fillets	<i>Engraulis encrasicolus</i>	<i>Engraulis ringens</i>	-	-	99.83	-	100	NO	canned sample
23	Marinated European anchovy fillets	<i>Engraulis encrasicolus</i>	<i>Engraulis encrasicolus</i>	98.32	-	-	-	-	NO	flavoring product
24	Surimi sticks	<i>Priacanthus prolixus</i>	<i>Priacanthus prolixus</i>	-	97.66	-	99.2	-	NO	flavoring product
25	Surimi sticks	<i>Gadus Morhua</i>	<i>Gadus Morhua</i>	98.55	-	-	-	-	NO	flavoring product
26	Alaska pollock fishburger	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	-	99.83	-	100	NO	fish burgers
27	Frozen skinless Alaska pollock fillet	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	-	99.83	-	100	NO	fillet
28	Frozen skinless Alaska pollock fillet	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	-	100	-	100	NO	fillet
29	Fillets of Patagonian flounder	<i>Paralichthys patagonicus</i>	<i>Paralichthys patagonicus</i>	-	99.84	-	100	-	NO	fillet
30	Fillets of Indo-Pacific Eightbar grouper	<i>Hyporthodus octofasciatus</i>	<i>Hyporthodus octofasciatus</i>	-	100	-	100	-	NO	fillet
31	Alaska pollock nuggets	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	99.84	-	100	-	NO	nuggets
32	Saithe from norway	<i>Pollachius virens</i>	<i>Pollachius virens</i>	-	-	100	-	100	NO	nuggets
33	Crispy Alaska pollock fillets	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	-	99.83	-	100	NO	fillet
34	Fish balls (Saithe)	<i>Pollachius virens</i>	<i>Pollachius virens</i>	-	100	-	100	-	NO	flavoring product
35	European plaice fillet	<i>Pleuronectes platessa</i>	<i>Pleuronectes platessa</i>	-	100	-	100	-	NO	fillet

36	Japanese amberjack fishburger with radicchio and chilli	<i>Seriola quinqueradiata</i>	<i>Seriola quinqueradiata</i>	-	99.83	-	100	-	NO	fish burgers
37	Pacific hake	<i>Merluccius gayi</i>	<i>Merluccius gayi</i>	-	99.83	-	100	-	NO	fillet
38	Atlantic bluefin tuna	<i>Thunnus thynnus</i>	<i>Thunnus thynnus</i>	-	99.82	-	100	-	NO	fillet
39	West African goatfish fillet	<i>Pseudupeneus prayensis</i>	<i>Pseudupeneus prayensis</i>	-	98.96	-	99.28	-	NO	fillet
40	Common sole fillet	<i>Solea solea</i>	<i>Actinopterygii sp</i>	-	100	-	99.84	-	NO	fillet
41	Pollock heart	<i>Gadus morhua</i>	<i>Gadus morhua</i>	-	99.66	-	100	-	NO	fresh fish cubes
42	Swordfish burger	<i>Xiphias gladius</i>	<i>Xiphias gladius</i>	-	99.83	-	99.83	-	NO	fish burgers
43	Skinned dogfish	<i>Mustelus mustelus</i>	<i>Mustelus asterias</i>	-	99.83	-	100	-	NO	fillet
44	European plaice fillet	<i>Pleuronectes platessa</i>	<i>Pleuronectes platessa</i>	-	99.83	-	99.81	-	NO	fillet
45	Pollock fillet	<i>Gadus morhua</i>	<i>Gadus morhua</i>	-	99.65	-	100	-	NO	fillet
46	Common sole fillet	<i>Solea solea</i>	<i>Solea solea</i>	-	99.83	-	100	-	NO	fillet
47	Common sole fillet	<i>Solea solea</i>	<i>Solea solea</i>	-	99.93	-	100	-	NO	fillet
48	Common sole fillet	<i>Solea solea</i>	<i>Solea solea</i>	-	99.49	-	99.65	-	NO	fillet
49	Alaska pollock sticks	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	99.65	-	99.82	-	NO	fresh fish cubes
50	Breaded, pre-fried and frozen Alaska pollock fantasies	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	99.66	-	100	-	NO	flavoring product
51	Yellowfin tuna fillet	<i>Thunnus albacares</i>	<i>Thunnus albacares</i>	-	99.66	-	100	-	NO	fillet
52	Yellowfin tuna fillet	<i>Thunnus albacares</i>	<i>Thunnus albacares</i>	-	99.83	-	100	-	NO	fillet
53	Alaska pollock sticks	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	100	-	100	-	NO	fresh fish cubes
54	Fishburger Alaska pollock fillets	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	100	-	100	-	NO	fish burgers
55	Atlantic pollock	<i>Merluccius hubbsi</i>	<i>Merluccius hubbsi</i>	-	99.65	-	100	-	NO	fillet
56	Atlantic pollock	<i>Merluccius hubbsi</i>	<i>Merluccius hubbsi</i>	-	100	-	100	-	NO	fillet
57	Atlantic salmon fish burger	<i>Salmo salar</i>	<i>Salmo salar</i>	-	100	-	100	-	NO	fish burgers
58	Pink salmon fillet	<i>Oncorhynchus gorbuscha</i>	<i>Oncorhynchus gorbuscha</i>	-	100	-	100	-	NO	fillet
59	Swordfish	<i>Xiphias gladius</i>	<i>Xiphias gladius</i>	-	99.51	-	100	-	NO	fillet
60	Alaska pollock steaks	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	100	-	100	-	NO	fresh fish cubes
61	Argentine hake	<i>Merluccius hubbsi</i>	<i>Merluccius hubbsi</i>	-	-	99.39	-	100	NO	fillet
62	Swordfish steaks	<i>Xiphias gladius</i>	<i>Xiphias gladius</i>	-	99.83	-	100	-	NO	fresh fish cubes

63	Yellowfin tuna burger	<i>Thunnus albacares</i>	<i>Thunnus albacares</i>	-	99.78	-	100	-	NO	fish burgers
64	Alaska pollock steaks	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	95.73	-	100	-	NO	fresh fish cubes
65	Argentine hake	<i>Merluccius hubbsi</i>	<i>Merluccius hubbsi</i>	-	99.42	-	100	-	NO	fillet
66	Swordfish steaks	<i>Xiphias gladius</i>	<i>Xiphias gladius</i>	-	99.64	-	100	-	NO	fresh fish cubes
67	Slices of blue shark	<i>Prionace glauca</i>	<i>Prionace glauca</i>	-	100	-	100	-	NO	fillet
68	Grilled Alaska pollock fillets	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	99.35	-	100	-	NO	fillet
69	Alaska pollock steaks	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	99.83	-	100	-	NO	fresh fish cubes
70	Slices of blue shark	<i>Prionace glauca</i>	<i>Prionace glauca</i>	-	99.63	-	100	-	NO	fillet
71	Alaska pollock fish burger	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	99.82	-	100	-	NO	fish burgers
72	Yellowfin tuna Burger	<i>Thunnus albacares</i>	<i>Thunnus albacares</i>	-	99.39	-	100	-	NO	fish burgers
73	Alaska pollock steaks	<i>Theragra chalcogramma</i>	<i>Theragra chalcogramma</i>	-	99.32	-	100	-	NO	fresh fish cubes
74	Shallow-water Cape hake fillet	<i>Merluccius capensis</i>	<i>Merluccius capensis</i>	-	100	-	100	-	NO	fillet
75	Swordfish	<i>Xiphias gladius</i>	<i>Xiphias gladius</i>	-	99.84	-	100	-	NO	fillet
76	Swordfish	<i>Xiphias gladius</i>	<i>Xiphias gladius</i>	-	99.62	-	100	-	NO	fillet
77	European plaice fillets	<i>Pleuronectes platessa</i>	<i>Pleuronectes platessa</i>	-	95.38	-	100	-	NO	fillet
78	Pacific hake	<i>Merluccius gayi</i>	<i>Merluccius gayi</i>	-	90.36	-	100	-	NO	fillet