

**Sampling of
Asian Dried Seafood Products**

Initial Results

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This project report presents the results of laboratory testing performed on dried fish samples sent to the Fishery Industrial Technology Center (FITC) in July 1998. Out of the twenty-eight samples submitted to the laboratory, sixteen were tested. A wide variety of samples were tested. Several were similar to the products project personnel intend to produce and test market in the surveyed countries. A number of the samples were dried and roasted fish fillets.

The tests we used to characterize products included water activity, moisture level, and salt content. We also checked seven samples for pH and bacterial counts. Photographs of the package of each sampled product have been included at the end of this report. The sample numbers shown in the photographs correspond to the sample number in the report tables. Laboratory personnel were able to identify the majority of the products, but several will require translation of the label for proper identification.

As can be seen in the tables, many of the samples were similar in composition. For thirteen of the samples, moisture content ranged from 11% to 18%; water activity ranged from 0.5 to 0.6; and salt levels ranged from 3% to 5%.

Several samples had characteristics that differed from those listed above. Two samples, number seven (squid strips) and number sixteen (whole split fish), had fairly high water activity levels, 0.77 and 0.78, respectively. At these levels, molds and yeast can grow on these products. These two samples also had the highest moisture contents. In fact, we noticed a considerable amount of mold on sample number sixteen (whole split fish). Sample number sixteen also had the highest salt level, which would be necessary to preserve a product with a moisture content this high. Sample number seven (dried salmon powder) had the lowest water activity of 0.25 and average salt levels of 3.9%, but a high moisture content of 32.1%. Apparently, there are other ingredients in this product that keep the water activity low, probably sugars and starches.

The microbial analysis showed very low bacterial levels in all products. The only measurable amounts of bacteria were found in sample number sixteen (whole split fish), which had 15,000 bacteria per gram. The pH of this sample was also significantly higher than the others and was somewhat alkaline. The pH of the other samples ranged from 6.2 to 6.8 — normal levels for most fish muscle.

Sample results are presented in the following tables:

Table 1 Sample Numbering Systems

Samples Tested

<u>Sample</u>	<u>Description</u>
1	shredded surimi
2	shark fin
3	small dressed fish
4	salmon powder in a can
5	unknown species
6	shredded squid
7	shredded squid
8	roasted fish fillet
9	small flat fish
10	small fish fillets
11	roasted fish fillets
12	roasted fish fillet
13	shredded fish
14	roasted fish fillets
15	small fish fillets
16	split fish

Moisture, Salt Content and Water Activity
of Dried Fish Samples

Sample	Moisture (%)	Salt (%)	Water Activity
1	13.0	4.9	0.50
2	12.0	0.0	0.54
3	13.0	4.2	0.52
4	32.1	3.9	0.25
5	10.8	3.2	0.52
6	13.6	3.5	0.58
7	37.3	5.4	0.77
8	19.5	4.6	0.63
9	6.0	1.9	0.32
10	11.2	3.9	0.47
11	18.6	1.4	0.65
12	16.4	5.4	0.56
13	13.5	5.4	0.55
14	17.3	4.9	0.56
15	15.0	2.8	0.55
16	48.3	15.1	0.78

Bacterial Counts and pH of
Selected Dried Fish Samples

Sample	pH	Aerobic Plate Count/g
1	6.72	less than 5,000
6	6.23	less than 2,000
11	6.37	less than 1,000
12	6.82	less than 1,000
13	6.68	less than 1,500
14	6.79	less than 3,500
16	8.47	15,000