<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>Silver Smelt: A Valued Non-Quota Fish?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Authors(s)</strong></td>
<td>Gormley, T. R. (Thomas Ronan); Ward, Paddy; Somers, J.</td>
</tr>
<tr>
<td><strong>Publication date</strong></td>
<td>1991</td>
</tr>
<tr>
<td><strong>Publication information</strong></td>
<td>Farm &amp; Food, 1 (4): 8-9</td>
</tr>
<tr>
<td><strong>Publisher</strong></td>
<td>Teagasc</td>
</tr>
<tr>
<td><strong>Item record/more information</strong></td>
<td><a href="http://hdl.handle.net/10197/6901">http://hdl.handle.net/10197/6901</a></td>
</tr>
</tbody>
</table>

The UCD community has made this article openly available. Please share how this access benefits you. Your story matters! (@ucd_oa)

Some rights reserved. For more information, please see the item record link above.
Silver Smelt: A Valued Non-Quota Fish?

T. R. Gormley, P. Ward, and J. Somers

Tighter fish quotas have given rise to increased interest in non-quota species throughout the EC. In encouraging this interest, the EC Commission undertook to fund (in part) a 2-year cooperative project on catching/handling, quality evaluation, processing and suitability for products of the Silver Smelt (Argentinus silus).

This project has been recently completed by staff at The National Food Centre (NFC), An Bord Iascaigh Mhara, The Department of the Marine, and at IFREMER (in France). The NFC component of the project, as presented here, dealt with the quality, composition and properties of the fish, and with its suitability for products and analogues.

Characteristics of the fish
The Silver Smelt is a non-quota, deep water (300-500 metres) fish species, which is caught off the west coast of Ireland at the edge of the continental shelf in the period April-June. Landings have varied considerably, with significant tonnage in some seasons and virtually none in others. This is because only a small number of Irish trawlers are capable of catching this fish due to equipment requirements for deep water fishing, and because currently it is more economical and easier to catch other species such as mackerel.

The Silver Smelt is a relatively small fish, with an average weight of about 0.5 kg, and ranging from 0.2 to 1.2 kg. It has easily detachable hard scales and very flat eyes. Careful machine filleting and bone separation are essential in order to remove small bones and skin. Commercial fillet yield is 40-43% with skin on, and about 30% for mince, as percentages of round fish weight.

Judging and testing
The quality of whole fresh fish (on ice) from different catches was assessed over a 6-day period post-catching, by a panel of judges using a four point scale, with 3 (top) and 0 (bottom). Marks were awarded for the appearance of the skin, eye, gills and flesh, the odour of the gills and skin, and the overall flesh condition. The results were favourable with 23 judges out of 54 giving scores of 3, and only 11 out of 54 scores below 2. There were no scores below 1. Parallel tests on steamed fish indicated that flavour and odour scores remained high throughout the period of iced storage, indicative of a good shelf life on ice. A paired comparison test with 12 tasters, showed that steamed Silver Smelt was preferred by 9 to 3 to steamed cod. The consensus was that the Silver Smelt had a pleasant bland flavour, white flesh and good texture. However, small bones were sometimes a problem. In a concurrent series of objective laboratory tests on fresh, iced Silver Smelt, the results generally supported the sensory testing by the judging panel.

Mean moisture, protein and fat contents of fresh Silver Smelt were 80, 17.9 and 0.5%, respectively, with corresponding ranges of 78.2-81.3%, 17.3-19.1%, and 0.3-0.8%. Total volatile nitrogen (TVN) values ranged from around 16 mg/100 g for fish which was 1-3 days on ice, to about 30 mg/100 g by day 6, indicating that, by then, the fish were close to the end of their 'fresh' shelf life.

Water binding
The ability of fish tissue to bind and hold water is of major significance in the production of fish products. Tests were carried out, therefore, on the water loss from pieces of fish tissue. Lower values for water loss indicate higher levels of water binding capacity.

The water binding capacity of fresh fillets of the Silver Smelt was similar to that of cod but lower than pollack and ling. The values for frozen fish were similar for the four fish types (Table 1). The results show clearly that both mincing and freezing had an adverse effect on water binding capacity. These findings were confirmed (Table 2) in further tests where the ability of Silver Smelt mince to hold added water was assessed. It is clear that, where possible, fresh fish should be used in the preparation or manufacture of fish products.

These data were largely mirrored in tests where fish flesh was used to produce gels with and without added water. Gels were made by mixing Silver Smelt mince with salt and added water (used only for 'added water' gels) in a food blender for 3 minutes at full speed. The mixture was transferred to sausage casings and cooked for 40 min. at 90°C. This produced long cylinders of gels which were sliced and tested. In the...
Freezing and frozen storage

It is best to make products from fresh or frozen whole fish/fillets rather than from frozen mince. Silver Smelt, but enrobed nuggets and fingers made from block-frozen mince were on the tough side.

Summary

Dr. Ronan Gormley and Mr. Paddy Ward are in The National Food Centre, Dunsinea, Castleknock, Dublin 15. Mr. Joe Somers is in An Bord Iascaigh Mhara, Crofton Road, Dun Laoghaire, Co. Dublin.