ORGANOLEPTIC DIFFERENCES IN SILVER PERCH PRODUCED IN INTEGRATED AQUACULTURE SYSTEMS

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Aquaculture is a relatively small, but diverse industry in Australia with recent research being into species suited to commercial production. Silver perch (*Bidyanus bidyanus*), an Australian native fresh water fish, is highly suited to integrated aquaculture production under a range of conditions, and has the potential for large-scale market acceptability. The development of successful primary industries requires a knowledge of production practices which may affect quality to consumers.

In this study, silver perch were grown out in cages suspended in irrigation channels, in above ground tanks supplied with saline groundwater and in ponds at a commercial fish farm near Shepparton, Victoria between November 1994 and April 1995 (McKinnon et al. 1996). Organoleptic properties (flavour, off-flavour, aroma and overall acceptability) of the cultured fish were evaluated after harvest, both before and after purging in freshwater. Taste panelists used nine point hedonic scales and consisted of men and women, selected from staff at Rutherglen Research Institute, able to gauge selected sensory attributes of the cooked fish.

Table 1. Effect of purging and site on flavour (1, extremely bland to 9, extremely intense), off-flavour (1, extremely intense to 9, no off-flavour) and acceptability (1, extremely poor to 9, extremely good) of cultured fish

<table>
<thead>
<tr>
<th>Site</th>
<th>Flavour Unpurged</th>
<th>Flavour Purged</th>
<th>Off-flavour Unpurged</th>
<th>Off-flavour Purged</th>
<th>Acceptability Unpurged</th>
<th>Acceptability Purged</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish farm</td>
<td>3.84*</td>
<td>4.58*</td>
<td>6.73*</td>
<td>6.53*</td>
<td>3.31</td>
<td>3.38</td>
</tr>
<tr>
<td>Ground water</td>
<td>5.41*</td>
<td>5.13*</td>
<td>5.08*</td>
<td>5.91*</td>
<td>2.86</td>
<td>2.89</td>
</tr>
<tr>
<td>Channel</td>
<td>5.66*</td>
<td>5.50*</td>
<td>5.12*</td>
<td>6.37*</td>
<td>2.70</td>
<td>3.40</td>
</tr>
</tbody>
</table>

LSD 0.60 0.83 0.78

Values in sensory attribute columns with different superscripts differ significantly (P<0.05).

Higher flavour intensities were found in fish farmed in saline groundwater and at the irrigation channel, while significantly less flavour was found in fish from the fish farm. Off-flavours were considered to be less in the pond-reared fish from the fish-farm compared to the other sites.

Purging significantly increased the flavour of pond-reared fish from the commercial farm, but had no significant effect on their acceptability to panelists. The flavour of fish from other sites was not significantly affected following purging. In contrast, off-flavours were significantly reduced by purging fish from the ground water and channel sites. Overall there was a trend indicating that fish from all sites had improved acceptability following purging.

The taste panel results indicate that the fish produced in this experiment were, in general, very acceptable to the palate. While site significantly affected the sensory attributes of the fish in some cases, there was no indication of the presence of extreme off-flavours. However, the results indicate that some sensory attributes can be significantly enhanced by purging in a clean water supply. Hence, post-harvest purging may be an essential management strategy to get the highest quality product from some sites.

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