INTRODUCTION

The crawfish industry is the second largest seafood industry in the state of Louisiana, which has significantly grown and changed in the last three decades. In 2017, farm-raised crawfish represented 54% of the total gross farm value generated within aquaculture enterprises. The demand has increased locally and regionally, resulting in the expansion of acreage and production during the last years. Crawfish is either live market or processed for tail meat, which depends on market price. During good years, when live crawfish price is high, only 12% of crawfish harvested is peeled; however, when crawfish prices are low, up to 40% is peeled. In the 90's, most crawfish tail meat was hot peeled, currently 60% of the facilities use cold peel method. Chilling before peeling allows hepatopancreas fat to solidify, which can result in a higher percentage of fat attached to tail meat. Customers usually look for crawfish tail meat containing fat naturally attached to meat. The percentage of fat naturally attached to crawfish tail meat standard was set in the early 90's. There is a need to review this standard and determine this percentage under current processing practices.

OBJECTIVE

The objective of this study was to quantify the percentage of fat naturally adhered to fresh crawfish tail meat under current processing conditions.

MATERIALS AND METHODS

- A total of 168 one-pound samples of fresh crawfish tail meat were collected from hot peel and cold peel processes in Louisiana.
- Measurements were done at 4-week intervals, from February to June 2018.
- The fat naturally adhered to meat was measured by a gravimetric method.
- Tail meat initial weight was recorded, then meat was placed in #8 sieve and rinsed under tap water for 45 seconds and drained for two minutes.
- Washed tail meat weight was recorded. Percentage of fat naturally adhered to crawfish tail meat was calculated from weight loss.
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RESULTS

The fat naturally adhered to crawfish tail meat ranged from -0.8% to 8.6%, with an average of 2.4 ± 1.9%. Fat percentage using cold peel method was significantly higher (p<0.0001) than hot peel method with an average of 3.2 ± 1.7% and 1.7 ± 2.0%, respectively (Figure 2). Cold peel method ranged from -0.2% to 5.6% and hot peel method from -0.8% to 8.6%. In addition, hot peel method showed a greater variance of fat percentage compared to cold peel. The percentage fat naturally adhered ranged at the beginning of the season from 0.6% to 6.3%. The fat percentage at the end of the season ranged from 0% to 8.6%.

Table 1. Range and averages of fat naturally adhered to fresh crawfish tail meat by month.

<table>
<thead>
<tr>
<th>Month</th>
<th>Peeling Temperature</th>
<th>Range Minimum (%)</th>
<th>Range Maximum (%)</th>
<th>Average (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>Hot peelers</td>
<td>2.94</td>
<td>6.31</td>
<td>4.14 ± 1.14 *&lt;sup&gt;A&lt;/sup&gt;</td>
</tr>
<tr>
<td>March</td>
<td>Cold peelers</td>
<td>0.59</td>
<td>4.51</td>
<td>2.57 ± 1.24 *&lt;sup&gt;AC&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Hot peelers</td>
<td>0.19</td>
<td>3.33</td>
<td>2.14 ± 0.77 *&lt;sup&gt;AC&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Hot peelers</td>
<td>-0.80</td>
<td>7.00</td>
<td>1.80 ± 1.93 *&lt;sup&gt;AC&lt;/sup&gt;</td>
</tr>
<tr>
<td>April</td>
<td>Cold peelers</td>
<td>2.55</td>
<td>5.29</td>
<td>3.68 ± 0.88 *&lt;sup&gt;AC&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Hot peelers</td>
<td>-0.39</td>
<td>4.12</td>
<td>1.36 ± 1.33 *&lt;sup&gt;C&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Hot peelers</td>
<td>-0.20</td>
<td>6.47</td>
<td>3.64 ± 2.59 *&lt;sup&gt;AC&lt;/sup&gt;</td>
</tr>
<tr>
<td>May</td>
<td>Hot peelers</td>
<td>0.00</td>
<td>7.45</td>
<td>1.46 ± 2.55 *&lt;sup&gt;C&lt;/sup&gt;</td>
</tr>
<tr>
<td>June</td>
<td>Cold peelers</td>
<td>0.00</td>
<td>5.59</td>
<td>3.01 ± 2.09 *&lt;sup&gt;AC&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Hot peelers</td>
<td>0.00</td>
<td>8.63</td>
<td>2.25 ± 3.19 *&lt;sup&gt;AC&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>A-C</sup>: Mean values followed by different letters in the same column are statistically significant (p<0.05).

CONCLUSION

Based on this study the quantification of fat naturally adhered to crawfish tail meat can vary by the peeling method used. Currently, most of the facilities use cold peeling method; however, about 33% of the Louisiana Crawfish peeling facilities use hot peeling method, these facilities are very close to the 10% limit established by the Louisiana Department of Agriculture. Overall, the results showed more fat naturally adhered to tail meat in cold peeling compared to hot peeling samples.

ACKNOWLEDGEMENTS

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REFERENCES