Mushroom acceptability and consumption intention for the main mushrooms produced in Brazil

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INTRODUCTION

Mushrooms are an important product in global trade [1]. In Brazil, the mushroom market is still a challenge due to low production technology and the need for consumer market development. There are few data about Brazilian mushroom consumption. Agaricus bisporus mushrooms are the most cultivated and consumed worldwide [1] and in Brazil [2]. Pleurotus ostreatus, Agaricus blazei (Agaricus brasiliensis; Agaricus subrufescens) and Lentinula edodes mushrooms, despite having an exotic and peculiar taste, are much less consumed. Thus, due to the mushroom functional importance, economic potential, and the lack of information on mushroom acceptability, this study aimed to compare the mushroom acceptability of A. bisporus, P. ostreatus, A. blazei and L. edodes. This research provides information about mushroom consumers’ acceptability and allows pointing out the commercial potential of the most cultivated mushrooms in Brazil.

MATERIALS AND METHODS

A. bisporus, P. ostreatus, A. blazei and L. edodes were rehydrated by boiling 700 mL of boiling water for 20 min. Sensorial evaluation was performed by the 5-point hedonic scale system, and the analysis of variance was performed by Tukey’s test (p≤0.05).

RESULTS

Table 1. Answers (n = 192) to hedonic scale for Agaricus bisporus, Pleurotus ostreatus, Agaricus blazei and Lentinula edodes mushroom sensorial evaluation.

<table>
<thead>
<tr>
<th>Fungus</th>
<th>&quot;I liked it&quot; (%)</th>
<th>&quot;I disliked it&quot; (%)</th>
<th>Mean scores for acceptability</th>
<th>F</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. bisporus</td>
<td>55.67</td>
<td>29.90</td>
<td>14.43</td>
<td>3.61*</td>
<td></td>
</tr>
<tr>
<td>P. ostreatus</td>
<td>58.76</td>
<td>14.43</td>
<td>26.81</td>
<td>3.47*</td>
<td>6.3 &lt; 0.001</td>
</tr>
<tr>
<td>A. blazei</td>
<td>56.70</td>
<td>14.43</td>
<td>28.87</td>
<td>3.41*</td>
<td></td>
</tr>
<tr>
<td>L. edodes</td>
<td>39.94</td>
<td>10.57</td>
<td>49.49</td>
<td>2.85*</td>
<td></td>
</tr>
</tbody>
</table>

A. bisporus, P. ostreatus and A. blazei received the highest (p<0.05) appreciation rates for color (Table 1). L. edodes had the highest (p<0.05) rejection for color with 49.5% for the sum of “I disliked it” and “I disliked it very much”. P. ostreatus, A. blazei and L. edodes presented the lowest “indifferent” percentage for color.

For aroma the highest (p<0.05) values for acceptability were for A. bisporus and A. blazei. L. edodes presented the highest (p<0.05) rejection rate for aroma.

For the consistency, A. bisporus was the most (p<0.05) accepted followed by P. ostreatus and A. blazei. L. edodes had the highest (p<0.05) rejection with 37.1% for the sum of “I disliked it” and “I disliked it very much”. Regarding flavor, A. bisporus had the highest (p<0.05) acceptability followed by P. ostreatus, and after A. blazei and L. edodes.

DISCUSSION

A. bisporus and P. ostreatus had light colors, whereas A. blazei had medium color. Light and medium colors are considered common for food, known and accepted by consumers. However L. edodes has a dark brown color – which is less common in food – reducing acceptance. Dark-colored foods could be rejected because they are associated with roasting and spoilage. Thus, the high rejection rate of L. edodes is likely associated with its dark color.

About the consistency acceptability, A. bisporus and A. blazei have an average of 28.0% and 20.6% of total dietary fiber. On the other hand, L. edodes has 53.3-57.5% of total dietary fiber and 14.4% of them are chitin, an insoluble long-chain polymer of a N-acyethylglucosamine with great resistance to bitting [3]. Thus, the bitting resistance is higher for L. edodes (0.81 to 1.23 kg mm^-3) whereas it is just of 0.33 kg mm^-3 for P. ostreatus [4].

CONCLUSION

The most accepted mushroom is Agaricus bisporus followed by Pleurotus ostreatus, Agaricus blazei and for last Lentinula edodes. There are no differences for mushroom acceptability according to the panelists’ socioeconomic characteristics. Most of the volunteers do not have a habit of buying and consuming mushrooms regularly, even though 90.6% are willing to purchase mushrooms and 38.5% are willing to pay as much as US$ 80 per dried kilogram of mushrooms. Mushrooms in Brazil are still considered exotic and are likely purchased as functional food, for their healthy benefits, rather than their sensorial characteristics.

REFERENCES


ACKNOWLEDGMENTS

Different letters in the same column for the same sensorial descriptor indicate statistical differences by Tukey’s test (p<0.05).