Characterization and acceptability of spirulina fortified snacks

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Introduction
Malnutrition constitutes a serious problem throughout the world. Children are the most vulnerable group. In Sub-saharan Africa, iron (Fe), zinc (Zn) and vitamin A deficiencies (VAD) are common. Food-based approaches represent a sustainable way to fight against these deficiencies. Among locally available foods, spirulina has a high nutritional potential. This study aims to assess the nutritional characteristics and acceptability of spirulina fortified snacks.

Results
Results showed that:
- 300 g of fresh spirulina in 1000g of wheat flour helped to improve the nutritional value of the snack.
- A significant increase in energy, proteins, vitamin A and iron was achieved in spirulina fortified snack (Table1).
- Although spirulina fortified snack was not well appreciated, 87 % of consumers were ready to adopt it for their children in the expectation that it will improve the nutritional status of the children (Figure).
- Only 13% of consumers said not to be ready to adopt the snack for the feeding of their children because of its dark colour and its taste which is perceived not to be sweet enough.

Methods
- An assessment of nutritional characteristics was carried out using the calculation method based on food composition table of Burkina-Faso.
- Thirty snack consumers randomly selected in two urban areas (Cotonou and Abomey-Calavi) were considered for the acceptability test. The evaluation was based on appreciation of organoleptic characteristics and their willingness to consume and feed their children with the snacks.

Table 1: Nutritional value of spirulina fortified snacks (wb for 100g)

<table>
<thead>
<tr>
<th>Nutritional value</th>
<th>Energy (Kcal)</th>
<th>Proteins (g)</th>
<th>VitA (μER)</th>
<th>Iron (mg)</th>
<th>VitB1 (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spirulina fortified snack</td>
<td>958,38</td>
<td>37,88</td>
<td>3085,8</td>
<td>40,5</td>
<td>1,19</td>
</tr>
<tr>
<td>Unfortified snack</td>
<td>648,27</td>
<td>14,71</td>
<td>168,68</td>
<td>4,71</td>
<td>0,86</td>
</tr>
</tbody>
</table>

Conclusion and suggestion
- A good knowledge of the spirulina and its health-benefit effects would facilitate the adoption and consumption of the spirulina fortified snack among population.
- A better sensibilization could positively impact the consumers' behavior toward the spirulina fortified snack.