SPRI Project on
A Peanut Shake Beverage Mix

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Instant beverage powders are convenient mixtures of dry ingredients that can be quickly reconstituted to refreshing or nutritious beverages upon addition of water or milk with minimal stirring.

Reasons for developing an instant beverage powder:
- long shelf life
- Can occupy a smaller volume than a liquid
- Easy to transport and store
- Consumer convenience
Objectives

- To create a smooth instant beverage powder from finely milled peanut flour and other additives, mimicking the popular meal-replacement shakes and protein shake mixes that are already on the market.
- To describe physical and sensory properties in relation to ingredient functionality.
- To optimize the formula based on sensory evaluation.
Materials and Methods

**Vertices:**
1. 7/12 peanut, 5/24 sugar, 5/24 milk
2. 5/24 peanut, 7/12 sugar, 5/24 milk
3. 5/24 peanut, 5/24 milk, 7/12 milk

**Outer Midpoints:**
4. 5/24 peanut, 19/48 sugar, 19/48 milk
5. 19/48 peanut, 5/24 sugar, 19/48 milk
6. 19/48 peanut, 19/48 sugar, 5/24 milk

**Inner Triangle Vertices:**
7. 2/5 peanut, 3/10 sugar, 3/10 milk
8. 3/10 peanut, 2/5 sugar, 3/10 milk
9. 3/10 peanut, 3/10 sugar, 2/5 milk

**Centroid:**
10. 1/3 peanut, 1/3 sugar, 1/3 milk
Materials and Methods
Materials and Methods

- Physical Testing
  - Viscosity
  - Color
  - Separation Rate
- Sensory Evaluation
EVALUATION OF PEANUT SHAKE

Sample ____________

*Directions:* Taste the drink labeled with the corresponding sample number. Give your rating of the product by placing an “X” in the most appropriate box in each category.

**FLAVOR**

<table>
<thead>
<tr>
<th>Overall:</th>
<th>Like Extremely</th>
<th>Like Very Much</th>
<th>Like Moderately</th>
<th>Like Slightly</th>
<th>Neither Like nor Dislike</th>
<th>Dislike Slightly</th>
<th>Dislike Moderately</th>
<th>Dislike Very Much</th>
<th>Dislike Extremely</th>
</tr>
</thead>
</table>

Peanut Taste

<table>
<thead>
<tr>
<th>Much Too Weak</th>
<th>A Little Too Weak</th>
<th>Just Right</th>
<th>A Little Too Strong</th>
<th>Much Too Strong</th>
</tr>
</thead>
</table>

Peanut Aroma (smell)

<table>
<thead>
<tr>
<th>Much Too Weak</th>
<th>A Little Too Weak</th>
<th>Just Right</th>
<th>A Little Too Strong</th>
<th>Much Too Strong</th>
</tr>
</thead>
</table>

Sweetness

<table>
<thead>
<tr>
<th>Definitely Not Sweet Enough</th>
<th>Needs to be a Little Sweeter</th>
<th>Just Right</th>
<th>A Little Too Sweet</th>
<th>Much Too Sweet</th>
</tr>
</thead>
</table>

**MOUTHFEEL**

<table>
<thead>
<tr>
<th>Overall:</th>
<th>Like Extremely</th>
<th>Like Very Much</th>
<th>Like Moderately</th>
<th>Like Slightly</th>
<th>Neither Like nor Dislike</th>
<th>Dislike Slightly</th>
<th>Dislike Moderately</th>
<th>Dislike Very Much</th>
<th>Dislike Extremely</th>
</tr>
</thead>
</table>

Thickness

<table>
<thead>
<tr>
<th>Much Too Thin</th>
<th>A Little Too Thin</th>
<th>Just Right</th>
<th>A Little Too Thick</th>
<th>Much Too Thick</th>
</tr>
</thead>
</table>

Grittiness

<table>
<thead>
<tr>
<th>Much Too Smooth</th>
<th>A Little Too Smooth</th>
<th>Just Right</th>
<th>A Little Too Gritty</th>
<th>Much Too Gritty</th>
</tr>
</thead>
</table>

**COLOR**

<table>
<thead>
<tr>
<th>Overall:</th>
<th>Like Extremely</th>
<th>Like Very Much</th>
<th>Like Moderately</th>
<th>Like Slightly</th>
<th>Neither Like nor Dislike</th>
<th>Dislike Slightly</th>
<th>Dislike Moderately</th>
<th>Dislike Very Much</th>
<th>Dislike Extremely</th>
</tr>
</thead>
</table>

Dark / Light

<table>
<thead>
<tr>
<th>Much Too Light</th>
<th>A Little Too Light</th>
<th>Just Right</th>
<th>A Little Too Dark</th>
<th>Much Too Dark</th>
</tr>
</thead>
</table>
Results and Conclusions

FLAVOR

Hedonic Flavor Rating Contour

Taste Rating Contour

Aroma Rating Contour

Sweetness Rating Contour
Results and Conclusions

MOUTH-FEEL

Hedonic Mouth-feel Rating Contour

Thickness Rating Contour

Grittiness Rating Contour
Results and Conclusions
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COMBINED PROPERTY OVERLAP – INDICATING OPTIMUM FORMULATION RANGE