HOT TOPICS ON PEANUTS
2006 Georgia Peanut Tour

September 12, 2006
Sponsored by

The Georgia Peanut Commission
And
The Food Product Innovation and Commercialization Center
And
The National Center for Peanut Competitiveness
# HOT TOPICS ON PEANUTS

<table>
<thead>
<tr>
<th>TIME</th>
<th>TOPIC</th>
<th>SPEAKER</th>
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<tbody>
<tr>
<td>3:00-3:05 p.m.</td>
<td>Opening Remarks</td>
<td>Dr. Yen-Con Hung</td>
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<tr>
<td>3:05-3:30</td>
<td>Economic prospects and emerging opportunities for global markets for peanuts</td>
<td>Dr. Nathan Smith</td>
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<td>3:30-3:55</td>
<td>2006 Georgia peanut crop</td>
<td>Dr. John Beasley</td>
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<td>3:55-4:10</td>
<td>Organic/niche market peanuts</td>
<td>Dr. Emily Cantonwine</td>
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<td>4:10-4:35</td>
<td>Research on peanut-based products at FoodPIC</td>
<td>FoodPIC faculty</td>
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<td>4:35-5:00</td>
<td>Ten years of Health and Nutrition</td>
<td>The Peanut Institute</td>
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<td>5:00-</td>
<td>Social</td>
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Improving Shelf Stability of Peanut Butter Tarts and Optimizing Process Development of Peanut-based Pasta

Kay McWatters, Manjeet Chinnan, Yen-Con Hung, and Mark Jarrard, Jr.

Department of Food Science and Technology
University of Georgia
1109 Experiment Street
Griffin, GA 30223-1797
Functionality of peanut flour in production of crackers

Kay McWatters, Sue Ellen McCullough and Sandra Walker

Department of Food Science and Technology
University of Georgia
1109 Experiment Street
Griffin, GA 30223-1797
Objectives

- To enhance the flavor of baked peanut flour crackers by formula modification
- To characterize the physical and chemical properties of the modified products
- To determine the consumer acceptance of promising prototypes
Experimental crackers made from light roast peanut flour (50% protein, 12% fat)
Mean ratings for consumer acceptance of peanut flour crackers
Evaluation of peanut flour crackers at the 2005 Georgia Peanut Tour, Columbus, GA
Instrumental color measurements

- **Lightness (L*)**
  - Experimental crackers: 63 to 68
  - Commercial crackers: 63 to 79

- **Chroma (saturation)**
  - Experimental crackers: 29 to 45
  - Commercial crackers: 22 to 40

- **Hue Angle**
  - Experimental crackers: 69 to 79
  - Commercial crackers: 73 to 83
## Nutritional data

<table>
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<tr>
<th>Per 28 g serving</th>
<th>Experimental</th>
<th>Commercial</th>
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<tbody>
<tr>
<td>Calories</td>
<td>130 to 150</td>
<td>120 to 160</td>
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<tr>
<td>Total fat (g)</td>
<td>5 to 10</td>
<td>3 to 7</td>
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<tr>
<td>Saturated fat (g)</td>
<td>1 to 1.5</td>
<td>0 to 1.5</td>
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<tr>
<td>Trans fat (g)</td>
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<td>0</td>
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<tr>
<td>Total carbohydrate (g)</td>
<td>11 to 16</td>
<td>18 to 22</td>
</tr>
<tr>
<td>Protein (g)</td>
<td>4 to 5</td>
<td>2 to 4</td>
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</table>
Instrumental texture measurements

- Force (Newtons)
  - Experimental crackers: 6 to 8
  - Commercial crackers: 8 to 14

- Energy (mJoules)
  - Experimental crackers: 1 to 2
  - Commercial crackers: 2 to 9
Conclusions

- Peanut flour functions successfully in production of baked crackers.
- Experimental crackers were acceptable to consumers and compared favorably to commercial crackers in color, texture and nutritional quality.
- Economic viability will be addressed in a future project.
The Effect of Various Peanut Flours on the Quality of Peanut Pasta

Yen-con Hung, Mark Jarrard, Jr., Sandra Walker and Marlon Higgins

Department of Food Science and Technology
University of Georgia
1109 Experiment Street
Griffin, GA 30223-1797
Peanut Pasta
2005

Objective

- Improve initial prototypes for an alternative to comparative products available in the commercial market
- Optimize product formula for maximum nutrient fortification
- Characterize the physiochemical properties.
Peanut Pasta 2005

White flour
Whole wheat flour
Peanut flour
Xanthan gum
Tap water
Peanut Pasta Sensory
Objectives for 2006

1. Improve textural quality of current peanut pasta prototypes.
2. Identify appropriate drying conditions to produce shelf-stable dried peanut pasta.
## Materials and Methods

### Ingredients and Weights

<table>
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<tr>
<th>Ingredients</th>
<th>Grams</th>
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<tr>
<td>peanut flour</td>
<td>83.75</td>
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<tr>
<td>corn flour</td>
<td>33.5</td>
</tr>
<tr>
<td>wheat flour</td>
<td>217.75</td>
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<tr>
<td>salt</td>
<td>3</td>
</tr>
<tr>
<td>water</td>
<td>120</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>458</strong></td>
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Light, Medium, and Dark Roast.
Materials and Methods

After the dough was made, it was run through the pasta machine to mix the moisture throughout the pasta.
Materials and Methods

The pasta then rested for 20 minutes.
Materials and Methods

The pasta was then run through the machine again to make the noodle.
Materials and Methods

Noodles cooked in boiling water for 3 minutes.

Noodles were also dried in an oven for 15 minutes.
Materials and Methods

Boiled

Dried
Materials and Methods

Then color and moisture content were measured.
Employing High Pressure Processing Technology to Improve Safety of Peanut Beverage and Milling Technology for Producing Shelf-stable Peanut Drink Powder

Yen-Con Hung, Manjeet Chinnan, Jinru Chen and Mark Jarrard, Jr.

Department of Food Science and Technology
University of Georgia
1109 Experiment Street
Griffin, GA 30223-1797
SPRI Project - Employing high pressure processing (HPP) technology to improve safety of peanut beverage.

Investigators: Dr. Manjeet Chinnan and Dr. Jinru Chen

- High pressure processing, a relatively new processing technology
- Advantage - Kills microorganisms without raising the product temperature
- Results in maintaining sensory and nutritional quality
HPP - Peanut beverage

- Study HPP technology under various pressure regimes for inactivation of pathogenic microorganism
  - Conduct shelf-life studies for HPP processed beverage
  - Monitor microbial growth
  - Evaluate sensory attributes.
Milling Technology for a Shelf-stable Ready-to-mix Peanut Drink Powder

Yen-Con Hung, Sandra Walker
and Mark Jarrard, Jr.

Department of Food Science and Technology
University of Georgia
1109 Experiment Street
Griffin, GA 30223-1797
Objectives for 2006

1. To establish processing parameters to yield peanut flour with particle size suitable for a ready-to-mix drink powder.

2. To incorporate flavor and stabilizing compounds to the peanut drink powder.
Cyclone Assisted Attrition Milling

Super Wing Mill DM-200

Impact/Attrition Mill
Materials and Methods

DARK ROAST MIX

LIGHT ROAST MIX

11/09/2005
Materials and Methods
Materials and Methods

11/09/2005
CONSENT FORM

I, __________________________, agree to participate in peanut research which is being conducted by Y.-C. Hung, Department of Food Science and Technology, University of Georgia, Griffin, GA. I understand that participation is entirely voluntary. I can withdraw my consent at any time and have the results of the participation returned to me, removed from the experimental records, or destroyed.

The following points have been explained to me:

1) The reason for the research is to gather sensory information on consumer opinions of food samples. The benefits that I may expect from the research are a satisfaction that I have contributed to the solution and evaluation of problems relating to such examinations.

2) The evaluation procedures are as follows: Coded samples will be placed in front of me. I will evaluate samples by tasting, swallowing, and rinsing and will record my evaluation on score sheets. All procedures are standard methods as published by the American Society for Testing and Materials. Each evaluation session will take approximately 5 minutes.

3) No discomforts are foreseen.

4) Participation entails the risk of an allergic reaction to the ingredients listed below. The researcher will make every attempt to determine any allergies prior to participation. It is also my responsibility to make known to the investigators any food allergies I may have in general and specifically to peanut flour, milk or common seasonings (salt, sugar).

   Allergies ____________________________  Witness Initials ____________________________

5) In the event of an allergic reaction, emergency services may be obtained by dialing 911. In the event that my participation in this study results in a medical problem, treatment will be made available. My insurance company or I will be billed for the costs of any such treatment. No provision has been made for payment of these costs or to provide me with any other financial compensation.

6) The results of this participation will be confidential and will not be released in any individually identifiable form without my prior consent unless required by law.

7) The investigators will answer any further questions about the research, either now or during the course of the project. Principal Investigator phone number: 770-412-4739.

My signature below indicates that the researchers have answered all of my questions to my satisfaction and that I consent to volunteer for this study. I have been given a copy of this form.

____________________________________  ________________________________________
Signature of Principal Investigator  Signature of Participant
Phone # 770-412-4739  Email: yhung@uga.edu
Date: 09/12/06  Witness: ____________________________

PLEASE SIGN BOTH COPIES OF THIS FORM. KEEP ONE AND RETURN THE OTHER TO THE INVESTIGATOR.

Additional questions or problems regarding your rights as a research participant should be addressed to Dr. Chris A. Joseph, Human Subjects Office, University of Georgia, 606A Graduate Studies Research Center, Athens, Georgia, 30602, phone (706) 542-3199, Email: IRB@uga.edu (Revised 09/8/06)
Materials and Methods
Peanut Drink Evaluation Form  Date:  9/12/06

Please write the sample code number on the space provided. Then evaluate each sample and check the space that best reflects your feeling about the sample. If you wish to comment, you may do so on the space provided.

Sample

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<tr>
<th>Dislike</th>
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