Dr. Yen-Con Hung

Professor
Department of Food Science and Technology
and
Food Product Innovation & Commercialization Center (Food PI&C)
The University of Georgia

September 13, 2016
Hot Topics on Peanuts
Tifton, Georgia
Dr. Koushik Adhikari
Assistant Professor, Food Sci. & Tech.

- Sensory analysis and consumer behavior
- Food Chemistry
Summary of Findings

- As storage time increased, the amount of aldehydes and ketones increased with decreases in pyzarines in the samples.
- These GC results were consistent with the increase of overall oxidized, cardboard, and painty flavors in the samples.
- Heavy plastic bag and storage temperature of 23°C could help preserve the peanut products up until 24 weeks regardless of raw or blanched.
- Mesh bag should be avoided due to its ineffectiveness in protecting the peanuts from oxidation.
Acceptability and Preference Drivers of Freshly Roasted Peanuts

- High-oleic 13M was preferred over normal-oleic 06G in overall liking, aroma liking, flavor liking, sweet liking and roasted peanut flavor liking, etc.
- Cluster analysis divided consumers into 3 segments
- Consumer overall liking was positively correlated with attributes related to fresh products and negatively correlated with the attributes that gave consumer the impression of oxidation and over-roast
Dr. William Hurst
Professor, Food Sci. & Tech.

- Postharvest technology of horticultural crops
- HACCP for fruit/vegetable, minimally processed fresh produce, and nuts.
- Statistical process control (SPC) for the food industry
- Conduct an annual short course on Preventive Controls for Nut Processors (July 26-28, 2015)
Dr. Kirk Kealey
Director, Food Product Innovation and Commercialization Center (Food PIC)

- Conversion of agricultural commodities to value-added food and beverage products for the farmers and entrepreneurs of GA
- Industrial experience on cheese, yogurt, pasta, granola, chocolate, soft drinks and juices
Food PIC Mission

MISSION

- Provides the vital infrastructure required for a new food business “incubator”:
  - human capital
  - technical leadership
  - physical facilities
  - state of the art equipment
UPDATE on New Building
September 2016
We now have bricks on all four sides. Inside the building we have dry wall being hung in the client suites and office area. Power is due to arrive this week!
To employ simulated *in vitro* digestion to:

- determine basic digestion kinetics
- evaluate the bioaccessibility of nutrients and bioactives in peanuts

Better understand how processing conditions and particle size affect digestion properties of peanuts
Major Findings

- Regarding bioaccessibility of protein:
  - After gastric digestion, increase as particle size decreases and is highest in raw peanuts
  - After intestinal phase however, highest in roasted peanuts

- Regarding total soluble solids:
  - After gastric digestion, increase as particle size decreases and highest in raw peanuts
  - After intestinal digestion, highest in roasted peanuts

- Regarding particle size distribution
  - Decreased particle size distribution is greater in roasted peanuts than raw peanuts

- Such results provide critical information about peanut digestion and can educate the food industry on how processing and particle size impact health benefits of peanuts.
Dr. Ronald Pegg
Professor, Food Sci. & Tech.

- Functional foods and nutraceuticals
- Bioactive properties of phytochemicals
- Separation and identification of bioactives
- Analysis of nutrients
Nutrients, Bioactives, and Antioxidant Activity of Georgia Peanut Cultivars

Eui-Cheol Shin,† Yue-Zhong Huang,† Ronald B. Pegg,*,† R. Dixon Phillips,‡ and Ronald R. Eitenmiller†

Commercial Runner Peanut Cultivars in the United States: Tocopherol Composition

Eui-Cheol Shin,† Yue-Zhong Huang,† Ronald B. Pegg,*,† R. Dixon Phillips,‡ and Ronald R. Eitenmiller†

Commercial Peanut (Arachis hypogaea L.) Cultivars in the United States: Phytosterol Composition

Eui-Cheol Shin,† Ronald B. Pegg,*,† R. Dixon Phillips,‡ and Ronald R. Eitenmiller†

Research Paper

Commercial Runner peanut cultivars in the USA: Fatty acid composition

Eui-Cheol Shin†, Ronald B. Pegg†, R. Dixon Phillips‡ and Ronald R. Eitenmiller†

Antioxidant Properties of Extracts Obtained from Raw, Dry-roasted, and Oil-roasted US Peanuts of Commercial Importance

Brian David Craft · Agnieszka Kosińska · Ryszard Amarowicz · Ronald Bruce Pegg

Analytical Methods

Chemometric approach to fatty acid profiles in Runner-type peanut cultivars by principal component analysis (PCA)


Original article

Interrelationships among tocopherols of commercial Runner market type peanuts grown in the United States

Eui-Cheol Shin,† Ronald B. Pegg,† R. Dixon Phillips‡,§ & Ronald R. Eitenmiller†
EFFECT OF PEANUT SKIN INCORPORATION ON THE COLOR, TEXTURE AND TOTAL PHENOLICS CONTENT OF PEANUT BUTTERS

YUANYUAN MA¹, WILLIAM L. KERR², GEORGE A. CAVENDER¹, RUTHANN B. SWANSON³, JAMES L. HARGROVE³ and RONALD B. PEGG¹,²

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journal homepage: www.elsevier.com/locate/foodchem

PEANUT SKINS-FORTIFIED PEANUT BUTTERS: EFFECT OF PROCESSING ON THE PHENOLICS CONTENT, FIBRE CONTENT AND ANTIOXIDANT ACTIVITY

Yuanyuan Ma¹, William L. Kerr², Ruthann B. Swanson³, James L. Hargrove³, Ronald B. Pegg²,⁴

Journal of Chromatography A, 1356 (2014) 64–81

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journal homepage: www.elsevier.com/locate/chroma

SEPARATION AND CHARACTERIZATION OF PHENOLIC COMPOUNDS FROM DRY-BLANCHED PEANUT SKINS BY LIQUID CHROMATOGRAPHY–ELECTROSpray IONIZATION MASS SPECTROMETRY

Yuanyuan Ma¹, Agnieszka Kosińska-Cagnazzo⁷, William L. Kerr⁴, Ryszard Amarowicz⁵, Ruthann B. Swanson⁴, Ronald B. Pegg⁶,⁷

Journal of Agricultural and Food Chemistry

pubs.acs.org/JAFCD

SEPARATION AND CHARACTERIZATION OF SOLUBLE ESTERIFIED AND GLYCOSIDE-BOUND PHENOLIC COMPOUNDS IN DRY-BLANCHED PEANUT SKINS BY LIQUID CHROMATOGRAPHY–ELECTROSpray IONIZATION MASS SPECTROMETRY

Yuanyuan Ma⁸, Agnieszka Kosińska-Cagnazzo⁷, William L. Kerr⁴, Ryszard Amarowicz⁸, Ruthann B. Swanson⁴, and Ronald B. Pegg⁵,⁶

LWT - Food Science and Technology 59 (2014) 222–228

Contents lists available at ScienceDirect

LWT - Food Science and Technology

journal homepage: www.elsevier.com/locate/lwt

PEANUT SKINS-FORTIFIED PEANUT BUTTERS: EFFECTS ON CONSUMER ACCEPTABILITY AND QUALITY CHARACTERISTICS

Clovice T. Sanders III⁹, Christa L. DeMasie⁴, William L. Kerr⁴, James L. Hargrove⁴, Ronald B. Pegg⁵, Ruthann B. Swanson⁴,⁹
Dr. Rakesh Singh
Professor and Head, Food Sci. & Tech.

- Value-added processing using various emerging technologies.
- Developing processes for peanut blanching and crispy products using radiant wall technology.
- Micronization followed by microencapsulation of phytochemicals from fruits.
Peanut Blanching

- Peanut Blanching with Infrared Radiation in a Radiant Wall Oven
Dr. Yen-Con Hung
Professor, Food Sci. & Tech.

- Processing technologies to help ensure food safety
- Peanut flour utilization
  - Peanut pasta
  - Peanut drink
  - Peanut pancake
  - Peanut biscuit
  - Peanut ice cream
- Peanut oil for frying
- Processing technologies to ensure peanut safety
- Peanut Information Network System
  www.worldpeanutinfo.com
Welcome to PINS!

The Peanut Information Network System (PINS) is a USAID Peanut-CRSP funded project. PINS is a Web-based system to distribute information on peanut organizations, peanut related publications and training materials. PINS also provides information on world-wide peanut producer, processor and consumer values, peanut meetings and workshops, and other related news and useful links.
Research & Publications

- Magazines and Journals
  - Peanut Science Journal
    Abstracts of 39 volumes (from 1974-2012)
    Database for easy search and access
  - Popular Peanut Magazine Links
- Conferences & Proceedings
  - APRES meetings
  - ICRISAT meetings
- Reports
  - USDA-National Peanut Lab Publications
  - USAID- Peanut CRSP Research Program
  - UGA Extension Publications
# Hot Topics on Peanuts
## A part of the 2012 Georgia Peanut Tour

September 18, 2012
Merry Acres, Inn, Albany, GA 31707

**Sponsored by**
The Georgia Peanut Commission
The Food Product Innovation and Commercialization Center, UGA
The National Center for Peanut Competitiveness, UGA
The USAID Peanut-CRSP Program

## Agenda and Presentations

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<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
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<td>3:00-3:05 p.m.</td>
<td>Opening Remarks</td>
<td>Dr. Yen-Con Hung</td>
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<td>3:05-3:15 p.m.</td>
<td>Update on 2012 Georgia peanut crop</td>
<td>Dr. John Beasley</td>
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<td>3:15-3:35 p.m.</td>
<td>Peanut ice cream</td>
<td>Dr. Yen-Con Hung</td>
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<tr>
<td>3:35-5:00 p.m.</td>
<td><strong>Special focus on “Peanut disease”</strong></td>
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<tr>
<td>3:35-4:00 p.m.</td>
<td>Peanut Diseases Now and Then: Three Decades of Georgia Peanut Diseases</td>
<td>Dr. Alexander Csinos</td>
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<td>4:00-4:20 p.m.</td>
<td>How to develop a new fungicide: An industry perspective</td>
<td>Mr. Keith Rucker, Bayer</td>
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<td>4:20-4:40 p.m.</td>
<td>Peanut disease prevention and control: An academy perspective</td>
<td>Dr. Timothy Brenneman</td>
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<td>4:40-5:00 p.m.</td>
<td>Peanut disease farm testing and treatment decision: An extension perspective</td>
<td>Dr. Bob Kemerait</td>
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