

Nutrient Profile of Unique Foods in Hawaii

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Introduction

- Funding Source: The Vitamin Settlement Funds
- Project Director: Dr. Sylvia Yuen, Director, Center on the Family, U. of Hawaii
- Project Title: Better Health Through Local Foods
- Objectives:
 - 1) Create a Database containing the nutritional content of local produce and food products.
 - 2) Develop science-based educational materials for the health professionals and the general public.

Approaches

- Identify local produce and food products lacking nutrient information.
- Select items of standardized recipes.
- Start with commercial items of portion control.
- Analytical procedures in accordance with AOAC International 17th ed. (year 2000)
- Express results in upper and lower range when sampling is not adequate.

Spam Musubi and Sushi



Spam Musubi vs. Sushi

- Meat Choice: spam
 - Rice: 120 to 160 grams per portion
 - Calories: 230 to 270
 - Protein: 4 to 5 grams
 - Fat: 7 to 8 grams
 - Sodium: 160 to 220 mg
- Meat Choice: fish
 - Rice: 20 to 35 grams per portion
 - Calories: 25 to 40
 - Protein: 1 to 3 grams
 - Fat: 1 to 3 grams
 - Sodium: 10 to 100 mg

Variations among Spam Musubi

■ Brand 1 (30 samples):

■ Spam wt. 26.3 (± 0.7) g

■ Rice wt. 133.6 (± 2.2) g

■ Fat: 5.1%

■ Protein: 2.6%

■ Calorie/portion: 235

■ Sodium/portion: **182 mg**

■ Brand 2 (28 samples):

■ Spam wt. **30.1 (± 1.5) g**

■ Rice wt. **147.7 (± 1.7) g**

■ Fat: 4.8%

■ Protein: 2.7%

■ Calorie/portion: 256

■ Sodium/portion: **184 mg**

Pork Sausages: Longa vs. Lot Choy

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|-------------------------------------|------------------------------------|
| ■ Longa originated from Philippine | ■ Lot Choy originated from China |
| ■ Moisture: 33.1% | ■ Moisture: 26.9% |
| ■ Casing: collagen | ■ Casing: intestines |
| ■ Protein: 20.4% | ■ Protein: 22.3% |
| ■ Fat: 31.6% | ■ Fat: 25.3% |
| ■ Sodium: 1090 mg per 100 g portion | ■ Sodium: 959 mg per 100 g portion |

Chicken Katsu vs. Breaded Chicken

- Breeding: *panko*
(Japanese bread crumbs)
 - Meat: thin slice chicken
 - Fat: 14 to 18%
 - Protein: 15 to 17%
 - Carbo.: 18 to 30%
 - Sodium: 230-340mg
 - *Tonkatsu* sauce:
1560mg/100g
- Breeding: bread crumbs
 - Meat: breast or drumsticks
 - Fat: 12 to 22%
 - Protein: 15 to 28%
 - Carbo.: 6 to 14%
 - Sodium: ??
 - Sauce: ??

Poi vs. Mashed Potato

- Ingredients: taro, water
 - Solid content: 14 to 16%
 - Protein: less than 1%
 - Fat: less than 1%
 - Dietary Fiber: 2%
 - Sodium: 20mg/100g
- Ingredients: potato, milk, butter, salt
 - Solid content: 18 to 21%
 - Protein: 2%
 - Fat: 4%
 - Dietary Fiber: ?
 - Sodium: 230mg/100g

Other Foods of Interest

- *Kim Chi*: Less than 20% of the sodium left in the cabbage leaves, the juice has about 800mg of sodium per oz. (28 grams).
- *Kamaboko* (Japanese style fish cake): contains more starch (14 – 15%) than protein (10 – 11%).
- *Taegu* (Korean fish fillet): contains over 1000mg sodium per 100g and about 13% of protein.
- Pork Hash (*Shio-Mai*): some has more fat than protein.

Asian Vegetables



β -Carotene in Local Vegetables

- Japanese cucumber contains about 3 times of β -carotene to the regular cucumber (240 μg to 80 $\mu\text{g}/100\text{g}$).
- Green onion is an abundant source of β -carotene, 100 folds higher than the onion.
- Green onion to onion bulbs: 1000 μg to less than 10 $\mu\text{g}/100\text{g}$.
- Japanese eggplant contains about 5 times of β -carotene to the regular eggplant (100 $\mu\text{g}/100\text{g}$).

Conclusions

- Many unique Hawaiian foods have roots or counterparts in other cultures.
- Many local foods are large in portion size and high in sodium and fat content.
- Commercialized local foods tend to have consistent portion sizes and follow standardized recipes.
- Some local Asian vegetables are rich sources of β -carotenes.