

## **Datil Pepper Summer Sausage: An Innovative Product Using Florida Datil Peppers<sup>1</sup>**

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### **Summary**

Datil peppers were used in this project to make a “Unique to Florida” value-added processed meat product. Datil peppers are grown primarily in St. Augustine, Florida, although they are cultivated throughout the United States and elsewhere. The peppers have been cultivated in St. Augustine for roughly 230 years. The Datil pepper summer sausage revealed a new application for the peppers in lieu of traditional applications such as hot sauces, relishes and dried pepper flakes.

### **Introduction**

Datil pepper, also referred to as “daddle pepper” is a variety of the species *Capsicum chinense* (syn. *Capsicum sinense*). Datil peppers are similar to habaneros but have a sweeter and fruitier flavor. Their level of heat (pungency) may be anywhere from 100,000 to 300,000 scoville heat units (SHU) (Foster, 2009), as compared to 350,000 to 500,000 SHU for habanero peppers. The Datil pepper pods are green and mature to orange or yellow, elongated in shape and can measure a length of one to four inches (2.54 – 10.16 cm). If grown outside, the pepper

must be planted when there is no frost. The peppers need warm growing conditions and are a full season cultivar. The plant will reach maturity in about five months. Other peppers in the species *Capsicum chinense* include scotch bonnet, habaneros and rocotillo.

Datil peppers are cultivated throughout the United States and elsewhere, but the majority is produced in St. Augustine, Florida where they have been traditionally cultivated for roughly 230 years. It is thought that the datil pepper was introduced to the St. Augustine area by Minorcan settlers in the 1700s, but a more plausible explanation is that it was introduced via trade with the Caribbean islands. The peppers are used to make hot sauces, relishes, and dried pepper flakes (Bosland, 1999). Datil peppers were used in this project to make a “Unique to Florida” value-added processed meat product.

### **Formulation for a Datil Pepper Summer Sausage Product**

Fresh datil peppers were obtained from Chef David Bearl, Director of Culinary Arts Institute at First Coast Technical College in St. Augustine, FL.

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Chef Bearl grows the peppers under greenhouse conditions. The peppers were transported to the University of Florida's USDA-inspected Meat Processing facility, washed, drained and split longitudinally. The seeds were removed and placed in a Ziploc bag for use in a second formulation. Peppers were chopped and added to the meat and seasoning mixture (Table 1). In an effort to utilize the whole pepper (i.e., pepper plus seeds), a second formulation was prepared where datil pepper seeds plus the chopped peppers were added to the meat mixture. The meat mixture was blended and stuffed into fibrous casings, placed into the smokehouse and cooked to an internal temperature of 155° F (Table 2). The cooked sausage was removed from the smokehouse and chilled to an internal temperature of 35° F.

The sausage was stored in the cooked meat cooler for 24 hours prior to evaluation for sensory characteristics (flavor, texture, overall appearance and general acceptance) by a consumer sensory panel. Duplicate subsamples per product were collected and analyzed for moisture (oven drying technique, method 985.14 AOAC, 2000), ash (muffle oven technique, method 920.153 AOAC, 2000), fat (method 960.39 AOAC, 2000), protein (Kjeldahl procedure, 928.08 AOAC, 2000), carbohydrate (by difference), water activity (Aqua Lab water activity meter, Model CX2, Decagon Devices, Pullman, WA) and pH (Accumet AB15 pH meter, Fisher Scientific). A commercially available summer sausage was purchased from a local supermarket and compared to the Datil summer sausage for proximate composition, water activity and pH. Samples of the product were shipped to Putnam County UF/IFAS Extension office for evaluation at various predetermined meetings and receptions which included the Culinary Arts Institute at the First Coast Technical College.

## Results and Discussion

The moisture, protein, fat, ash, carbohydrate, water activity and pH of all summer sausages were similar (Table 3) which revealed that the peppers did not affect the proximate composition, water activity and pH of the summer sausage. Sensory evaluation of the products revealed acceptable flavor, texture, overall appearance and general acceptance (Table 4).

However, flavor and general acceptance of the summer sausage containing the Datil pepper seeds were rated lower due to the presence of additional heat imparted by the seeds. The panelists commented that the seeds increased the heat in the sausage and masked the meaty flavor. The panelists preferred the overall appearance of the sausage containing the seeds.

## Conclusion

The production of Datil pepper summer sausage revealed a new product that can be produced using Florida grown peppers. The peppers also functioned to increase product line extension for summer sausage. Chef Bearl is currently exploring numerous applications for the Datil peppers in meat as well as nonmeat applications. These applications include Datil Salami, Datil Kielbasa, Datil O'Brien Potato recipe and Datil Jelly. He describes the Datil Jelly as "just plain wonderful and very well received by everyone."

## References

- Association of Analytical Communities. 2000. Official methods of analysis of the association of official analytical chemists, 17th ed. Association of Official Analytical Chemists, Washington, DC.
- Bosland, P. 1999. Encyclopedia of Chiles. Page 92 in Chile Peppers. Handbook # 161. Brooklyn Botanic Garden
- Foster, N. 2009. What is A Datil Pepper? <http://www.wisegEEK.com/what-is-a-datil-pepper.htm> . Accessed May 15, 2009

**Table 1.** Datil Pepper Summer Sausage formulated with and without Datil seeds.

Ingredients	Formulation A	Formulation B
75% Lean Beef trimming (lb)	94.13	93.64
Dextrose ( lb)	0.94	0.94
Salt ( lb)	2.18	2.18
Modern cure (lb) <sup>a</sup>	0.24	0.23
Sodium erythorbate (lb) <sup>b</sup>	0.051	0.050
Spice Blend (lb) <sup>c</sup>	0.35	0.34
Starter culture (14 mL/cwt, blend with 100 mL water)	13.2 mL	13.1 mL
Chopped Fresh Datil Peppers (lb)	2.11	2.11
Whole Datil Pepper Seeds (lb)	0.0	0.50
<sup>a</sup> Modern cure contains 6.25% sodium nitrite. Therefore, need to use 4 oz of modern cure per 100 pounds of meat which is equivalent to 0.25 ounces of sodium nitrite per hundred pounds of meat.		
<sup>b</sup> Sodium erythorbate usage is 0.875 ounces per hundred pounds of meat.		
<b>Spice Blend Preparation: Use 5.88 ounces (167 grams) per 100 pounds of meat</b>		
Ingredients	%	
Ground white pepper (or black pepper)	48.54	
Garlic powder	7.77	
Nutmeg	19.42	
Ground coriander	19.42	
Allspice	4.85	

**Table 2.** Thermal Processing Schedule for Datil Pepper Summer Sausage.

Stage	Dry Bulb (F)	Wet Bulb (F)	Time (hours)	Program
1	100	95	12	Steaming (Fermentation)
2	100	95	2	Hot Smoke
3	155	126	1.5	Hot Smoke
4	165	135	to Internal Temp. of 155 F	Cooking
5	Cold Shower for 2 minutes			

**Table 3.** Proximate Composition for Datil Pepper Summer Sausage.

Product Description	Moisture (%)	Protein (%)	Fat (%)	Ash (%)	Carbohydrate (%) (by difference)	Water Activity	pH
Commercial Summer Sausage	47.50	16.95	29.96	3.99	1.62	0.947	5.33
Datil Summer Sausage	47.70	16.51	29.96	3.36	2.47	0.945	5.39

**Table 3.** Proximate Composition for Datil Pepper Summer Sausage.

Datil summer sausage, seeds added	48.10	16.91	29.58	3.62	1.79	0.946	5.31
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**Table 4.** Sensory Evaluation of Datil Pepper Summer Sausage.

Summer sausage description	Sensory Panelists Responses*			
	Flavor	Texture	Overall Appearance	General Acceptance
Control	7 <sup>a</sup>	6 <sup>a</sup>	6 <sup>b</sup>	6 <sup>a</sup>
Datil pepper, no seeds	7 <sup>a</sup>	6 <sup>a</sup>	6 <sup>b</sup>	6 <sup>a</sup>
Datil pepper plus seeds	4 <sup>b</sup>	6 <sup>a</sup>	7 <sup>a</sup>	5 <sup>b</sup>

\*Scoring Scale: 8 = Like extremely, 7 = like very much, 6 = like moderately, 5 = neither like nor dislike, 4 = dislike slightly, 3 = dislike moderately, 2 = dislike very much, 1 = dislike extremely.