

Sugar Method Development for Feeds and Pet Foods

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Background

Method needs statement:

Table 1. Recommended Method Performance Characteristics:

	Method LOQ, %	Operational concentration range, %	Accuracy at LOQ	Accuracy at midrange	Repeatability (CVr) at Midrange	Repeatability (CVr) at 2xLOQ
Each compound	0.1%	0.1% – 100%	90% - 108%	92% - 105%	= or < 4%	= or < 5%

6 mono and disaccharides in wide variety of feed matrices

- Glucose
- Fructose
- Galactose
- Maltose
- Lactose
- Sucrose

Mini Collaborative

50% Ethanol extraction

3 detection methods

HPAEC-PAD

HPLC Post column derivitization

HPLC- ELSD

HPAEC-PAD Result Highlights from 3 labs

% Sugars and % Relative Standard Deviations

	Mean	Range	Single day Precision	Multi day Precision	Multi lab Reproducibility
Glucose Standard	0.522	0.511 – 0.532	0.7%	1.0%	1.5%
Cat food glucose	0.148	0.134 - 0.158	0.5%	3.9%	6.0%
Cat food Total sugar	2.07	1.67 – 2.29	0.8%	6.7%	11.1%
Pig feed glucose	0.153	0.095 – 0.189	1.4%	12.0%	17.6%
Pig feed total sugar	5.45	4.62 – 5.99	1.4%	4.9%	9.0%
Horse feed glucose	0.219	0.140 – 0.282	3.4%	9.7%	17.5%
Horse feed total sugar	2.75	2.33 – 3.24	2.6%	4.2%	12.9%

Next Step

Complete and Analyze Mini-Collaborative study

Publication?

Evaluate other challenging matrices: milk replacers

Seek AOAC Official Method status – Support from stakeholders for Food Advisory Panel sponsorship