FCCI Cacao Sampling Protocol

Purpose

The Fine Cacao and Chocolate Institute recommends these standards for preparing and evaluating cacao samples. These guidelines will ensure the ability to most accurately assess the quality of the cacao.

Two options for sampling methods are described below:

1. the laboratory protocol, which requires access to electricity; and
2. the field protocol, which can be conducted without access to electricity.

Materials needed – laboratory protocol

- Samples of fermented, dried, unroasted cacao beans for tasting and comparison (ideally, multiple samples)
- White cane sugar or xylitol (optional)
- Popcorn popper
- Nut cracker
- Electric blade mill grinder
- Stemless wine glasses for holding samples
- Cups for water
- Spittoon or spit cup
- 1 teaspoon measuring instrument
- 1/8 teaspoon measuring instrument
- Evaluation forms
- Pens with scent-free ink

Materials needed – field protocol

- Samples of fermented, dried, unroasted cacao beans for tasting and comparison (ideally, multiple samples)
- White cane sugar or xylitol (optional)
- Nut cracker
- Burr grinder
- 1 teaspoon measuring instrument
- Evaluation forms
- Pens with scent-free ink

Equipment specifications

Popcorn popper: Strongly recommended is the West Bend Air Crazy 3.5-quart popcorn popper (item number 82416). Another popcorn popper of similar capacity with tangential air flow guides can be substituted if necessary.

Electric blade mill grinder: Strongly recommended is the KRUPS 3-ounce coffee grinder (item number F203). Another coffee grinder of similar capacity with stainless steel blades can be substituted if necessary.

Wine glasses: Strongly recommended are stemless wine glasses of approximately 15 to 17-ounce capacity with a top diameter of 3 to 3.5 inches. All wine glasses used should be of identical volume, dimensions, and material of manufacture. FCCI currently uses Libbey Vina 16.75-ounce stemless red wine glasses.

Burr grinder: Strongly recommended is the GSI Outdoors JavaMill Coffee Grinder (item number 79486). Another burr grinder of similar capacity and design can be substituted if necessary.

Environment

- Well lit
- Clean, no interfering aromas
- Quiet, with limited distractions
- Comfortable temperature

Method

Prepare each sample

1. Select 30-50 beans at random.
2. Shell and winnow the beans. If possible, the beans may be shelled fully raw. If this proves difficult, prior to shelling, the beans may be puffed in a popcorn popper for at most 45 seconds while shaking the popper to keep the beans agitated. It is important that heat exposure to the beans be minimal.
3. Quickly grind the shelled beans to around 500µm in a clean grinder. For the lab protocol, use the electric blade mill grinder for at most 10 seconds while vigorously shaking the mill up and down to prevent clumping. For the field protocol, use the burr grinder until the particles are of a uniform size. The goal is a grind similar to a standard coffee drip grind. Note that, in the blade mill, it takes some care to keep the material moving to prevent hot spots.
4. For the lab protocol, place the ground material in a stemless wine glass, and label the sample with a random three-digit identifier. For the field protocol, taste directly from the grinder or another clean vessel. In both cases, proceed with evaluation within a few hours of preparation.

Evaluate each sample without sugar

5. Agitate the material while your nose is over the holding vessel via tumbling or gentle stirring with an implement.
6. Place 1 teaspoon of material into your mouth and chew. Move it around your mouth, periodically opening your mouth while chewing, and detect aromas for 30 seconds.
7. Spit and record readings on taste and aroma.
8. Rinse your mouth thoroughly with room temperature water, and expectorate the rinse water.
9. If you experience palate overload or a sample's astringency carries over too much, take a break.

Evaluate each sample with sugar (after evaluating all samples without sugar)

10. As desired, repeat the procedure with the addition of 1/8 tsp of sugar or xylitol and note any differences in aroma detection results.

Food safety

Samples with obvious defects, as explained here, should not be used for organoleptic evaluation. An evaluation cut test with 100 beans should reveal at most 1% beans with internal mold. Use common sense when determining whether a sample is safe to consume. Wherever possible, a phytosanitary certificate issued by reputable regulatory authorities of the country of origin is desirable to ensure that sanitary and phytosanitary standards have been met.

As with many raw or unpasteurized food products, infants and young children, pregnant women, older adults, and those who are immunocompromised should not participate without the advice of a medical professional.

When preparing and evaluating samples, it is essential to wash your hands often, particularly before and after preparation, and especially after handling raw cacao. A good hand washing protocol includes wetting your hands; applying scent-free soap; rubbing your hands vigorously together for 20 seconds; rinsing your hands thoroughly under clean, running warm water; and drying your hands completely using a clean disposable or cloth towel.

To avoid microbial foodborne illness, thoroughly clean all food contact surfaces and keep cacao samples separate during transportation, preparation, and storage. Care should be taken to remove all shell fragments from samples before grinding.

Sample evaluation

The attached evaluation form provides a means of recording important flavor attributes for cacao. A full description of these attributes is forthcoming.

Feedback

To submit feedback or questions on the cacao sampling protocol or evaluation form, please contact FCCI by email: contact@chocolateinstitute.org.

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