

Hummus Texture Analysis

Firmness and stickiness testing of hummus is crucial to assess texture quality, which directly impacts consumer satisfaction. These metrics help manufacturers ensure consistent texture and spreadability across different hummus flavors.

Background:

- This test compresses hummus samples to measure firmness (hardness) and stickiness (adhesiveness). The probe penetrates the hummus, recording force values that indicate the effort required to break through and pull away from the sample, representing bite resistance and spreadability.

Equipment:

- CTX Texture Analyzer with 5kg load cell
- Components: 40 mm 170° Shallow Conical Probe, Fixture Base Table
- Software: Texture Pro for setting parameters and capturing data



Settings:

- Test Type: Compression
- Target Type: Distance
- Target Value: 18 mm
- Trigger Load: 50 g
- Pre-Test Speed: 1.5 mm/s
- Test Speed: 1.5 mm/s

Sample Preparation:

1. Store the hummus sample at 4°C overnight.
2. Use a spatula to create a smooth, even surface on the hummus before testing.

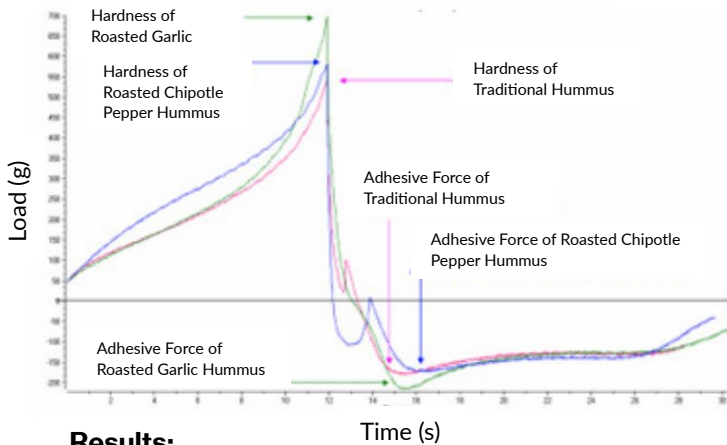
Procedure:

1. Attach the conical probe to the analyzer.
2. Position the Fixture Base Table on the analyzer and align the probe centrally over it.
3. Place the hummus sample on the table, centering it under the probe.
4. Adjust the probe to 3 mm above the sample, set test parameters, and initiate the test.
5. Repeat for all samples, ensuring consistent positioning and setup.

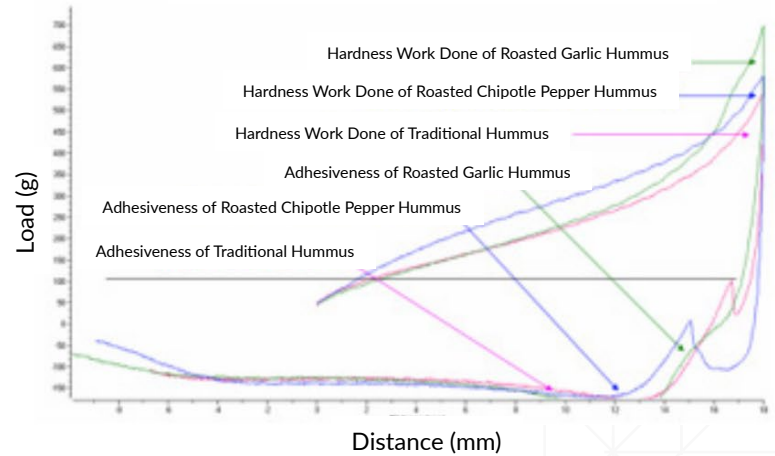
Observations:

- Load vs. Time Plot: Displays the firmness (peak load) and adhesive force of each sample.
- Load vs. Distance Plot: Indicates the work required to penetrate the sample (hardness work) and the adhesiveness during withdrawal.

Hardness Work Done and Adhesive Force of Hummus Samples



Hardness Work Done and Adhesiveness of Hummus Samples



Results:

- Sample Data:
 - Traditional Hummus: Peak Load = 549.5 g, Hardness Work = 40.59 mJ, Adhesive Force = 180.5 g, Adhesiveness = 29.92 mJ
 - Roasted Chipotle Pepper Hummus: Peak Load = 580 g, Hardness Work = 49.3 mJ, Adhesive Force = 173.5 g, Adhesiveness = 32.6 mJ
 - Roasted Garlic Hummus: Peak Load = 698 g, Hardness Work = 43.94 mJ, Adhesive Force = 217 g, Adhesiveness = 34.17 mJ

#	Sample Description Product Name	Batch Name	Results Hardness Cycle 1 (g)	Hardness Work Cycle 1 (mJ)	Adhesive Force (g)	Adhesiveness (mJ)
1	Hummus	Traditional	549.50	40.59	180.50	29.92
2	Hummus	Roasted Chipotle Pepper	580.00	49.30	173.50	32.60
3	Hummus	Roasted Garlic	698.00	43.94	217.00	34.17

Discussion:

Peak load reflects firmness, with roasted garlic hummus being the firmest. Adhesive force measures the effort needed to pull the probe from the sample, with roasted garlic also showing the highest values. These results guide quality control by identifying ideal textures across different flavors.