

Oral presentation | A 食品成分, 食品分析 (Food Ingredients, Food Analysis)

📅 Thu. Aug 28, 2025 3:00 PM - 5:30 PM JST | Thu. Aug 28, 2025 6:00 AM - 8:30 AM UTC 🏢 Room F(3F 133)

[2Fp01-10] その他の成分、感性評価、官能評価

Chair: Motoko Ohhata

5:15 PM - 5:30 PM JST | 8:15 AM - 8:30 AM UTC

[2Fp10] Visualization for Onomatopoeic Texture of Chiffon Cake : Application of a Two-Dimensional Texture Map

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Keywords : chiffon cake、onomatopoeic、texture、sensory evaluation

[Purpose]

Chiffon cake is a sponge cake made with meringue and vegetable oil, baked in a mould with a central cylindrical hole. Its texture is often described using onomatopoeic expressions like FUWA-FUWA, yet the physical and structural bases for such terms remain unclear. This study aimed to visualise onomatopoeic textures through sensory evaluation, physical measurement, and structural observation, to clarify factors contributing to taste perception. A two-dimensional texture map was used to track changes in texture during mastication along the time axis and oral region, focusing on how structural breakdown affects perceived attributes such as firmness, stickiness, roughness, and uniformity.

[Methods]

15 chiffon cakes from speciality shops were analysed. Sensory evaluation included CATA, scoring, and ranking. Physical measurements involved moisture content, repeated compression and mouthfeel tests using a creep meter, and paste viscosity using a rheometer. Structural features such as porosity were assessed via X-ray CT.

[Results]

Three key onomatopoeic textures were identified: (A)SHITTORI, (B)FUWA-FUWA, and (C)MOTCHIRI. Ranking results showed that SHITTORI and FUWA-FUWA were preferred over MOTCHIRI. Structural observation revealed a correlation between porosity and FUWA-FUWA. Using mastication-simulated data, the two-dimensional texture map helped relate physical changes to perceived texture, offering insight into how sensory impressions align with measurable properties.