Wadsworth Center, Biggs Lab
Medical Marijuana Laboratory and Environmental Laboratory Approval Program

Guidance Document for the Homogenization of Whole Flower for Composite Analysis

October 5, 2021

Cannabis whole flower is a non-homogeneous and naturally variable material which must be homogenized by grinding, quartering and compositing prior to analysis. Below are recommendations for creating a homogenized composite sample to ensure sterility prior to sampling for microbiological analyses.

Grinding

1. Create a homogenized composite sample from the submitted testing samples for each lot (Figure 1, Figure 2, and Figure 3).
    a. The blender (jar, lid, blade, and collar) must be autoclavable.
    b. In a biosafety cabinet, aseptically combine the samples from each final product container into a sterile glass or stainless steel blender jar.
        i. Depending on the amount of product used to create a composite sample, multiple blender jars may be used.
    c. Use the “pulse” feature to homogenize at brief intervals (approximately 1-3 seconds) and allowing for a few seconds in between pulses to minimize the heating effect of the composite sample.
        i. The number of pulses will vary with blender types and the amount of product being homogenized.

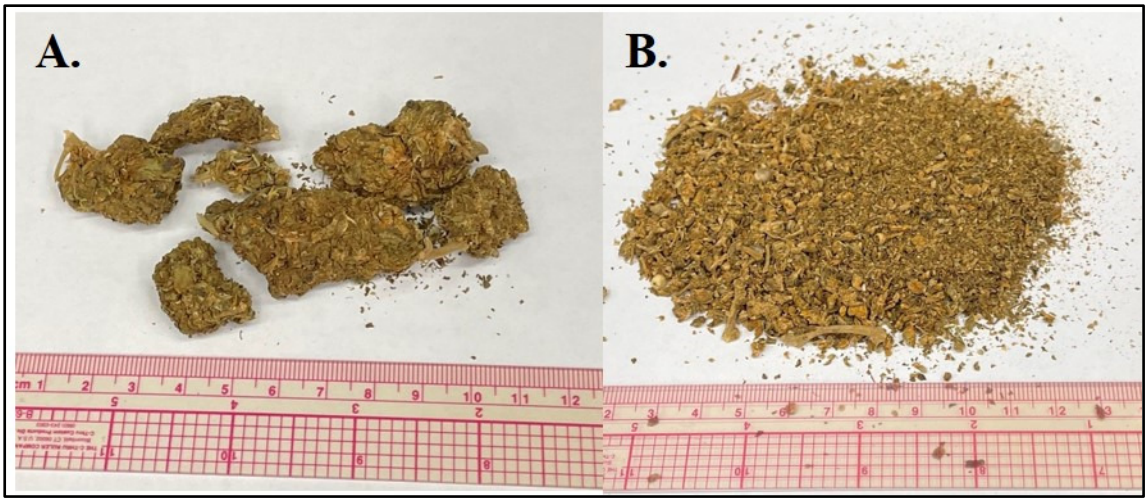

Figure 1 - Blending 5g of Whole Flower. Panel A is the product before blending. Panel B is the product after 10, 1 second pulses.

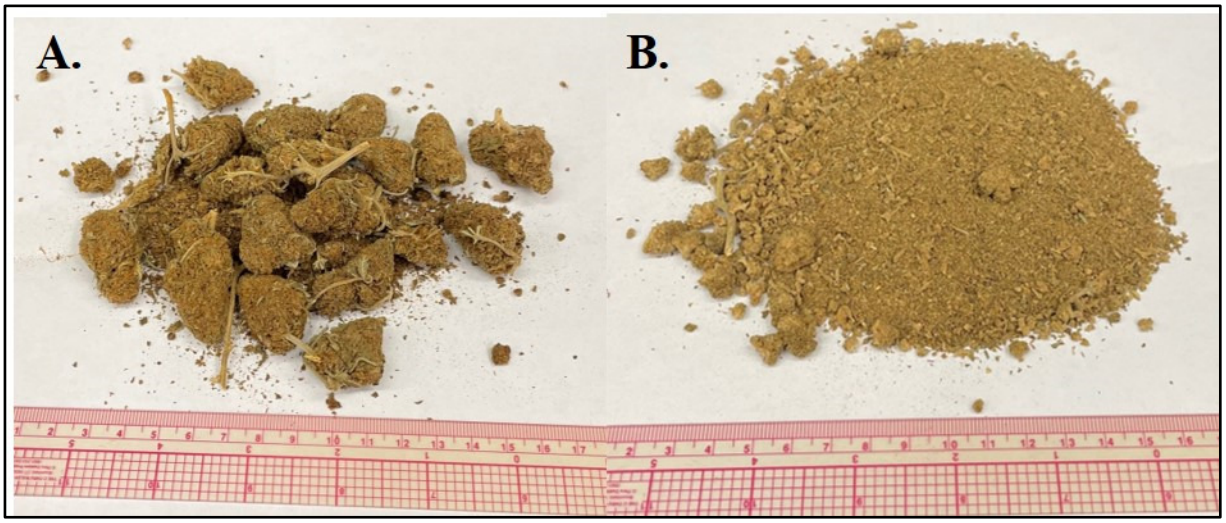

Figure 2 - Blending 20g of Whole Flower. Panel A is the product before blending. Panel B is the product after 20, 1 second pulses.


Figure 3 - Fine Particles Coating the Inside of the Blender Jar After Homogenization.

Quartering and Compositing

2. Collect a homogenous sample by quartering.
    a. Once the desired particle size has been achieved (approximately 3mm as in Figures 1 and 2), place the entire composite onto a sterile surface and form a square-shaped heap.
    b. Divide the composite diagonally into four equal parts.
    c. Aseptically combine two opposite quarters, and create a second square shaped heap.
    d. Repeat the quartering steps until the composite has been reduced to an acceptable sample size.
    e. Aseptically remove at least 20 doses for microbiological analyses.

Cleaning Equipment

3. Clean equipment by doing the following:
    a. Disassemble the blender and wash the jar, lid, blade, and collar using the laboratory's glassware cleaning procedure.
    b. Once dried, rinse all pieces with reagent grade ethanol three times to remove any residues.
    c. Rinse all pieces five times with DI water, re-assemble, and autoclave.

References:

APHL, May 2016. Guidance for State Medical Cannabis Testing Programs. Available from: https://www.aphl.org/programs/environmental_health/Pages/Cannabis-Testing.aspx

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