Sunflower Seed Homogenization Using the Bullet Blender

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Materials

- Bullet Blender® for 50 mL tubes
- Homogenization Buffer
- FoamBlocker (Optional)
- Lysis Beads
    - 4.8 mm Stainless Steel Beads or 5.6 mm UFO Beads in HIPPO tubes
- Sample — up to 3500 mg

Table 1. Proper sample, bead and buffer volume ratios for 50 mL tubes.

Bead Choices	Sample Volume	Bead Volume	Buffer Volume
4.8 mm Stainless Steel Beads or 5.6 mm UFO Beads	Up to 3500 mg	10 - 20 mL	Up to 20 mL

Procedure

1. Prepare a tube with the recommended volume of bead choices from the table above.
2. Add the appropriate volume of buffer according to the table above
3. Prepare the sample by crushing it into small thin pieces and then transfer it into the buffer-filled tubes.
4. (Optional) To avoid excess foaming, add FoamBlocker up to 1-2% of the total volume of the homogenization buffer.
5. Close the tubes tightly and place into the Bullet Blender sample chamber. If using the Gold or Gold^{+} models, pre-cool the chamber before adding sample tubes.
6. Set the controls to speed 12, time 12 minutes then press Start.
7. After the run, remove the tubes from the instrument and visually inspect the samples. If homogenization is incomplete, homogenize for an additional 30 seconds, or repeat the homogenization step with a higher speed.
8. Using a pipette, transfer the homogenized samples into new tubes.
9. Proceed with downstream application.

Notes

This protocol does not specify a particular buffer – choose a buffer that is most appropriate for the downstream application or use the lysis buffer provided in a PrecisionPak™, a simplified workflow solution which also includes a bead lysis kit, supplemental reagents for high quality nucleic acids isolations, and an optimized protocol for specific samples.

The provided homogenization conditions serve as a general guideline. Homogenization times, speeds, or beads may need to be optimized based on sample characteristics and desired outcomes.

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