AUTOLAB HBH:
Agriculture / Environmental Application Note

Transforming Molecular Sample Prep with Autolab HBH

The Autolab HBH is a fast and effective nucleic acid preparation method that delivers molecular test-ready samples—both **RNA and DNA**—in under 2 minutes across a wide range of sample types and matrices. The system employs **hyperbaric heating (HBH)** conditions (i.e., internal temperatures exceeding 100°C in a pressurized environment) to rapidly lyse samples and release nucleic acids.

Autolab HBH is technically simple, requiring only two steps:

1. Heat up to 1 mL of sample in the proprietary HBH bullet
2. Briefly centrifuge to pellet additives

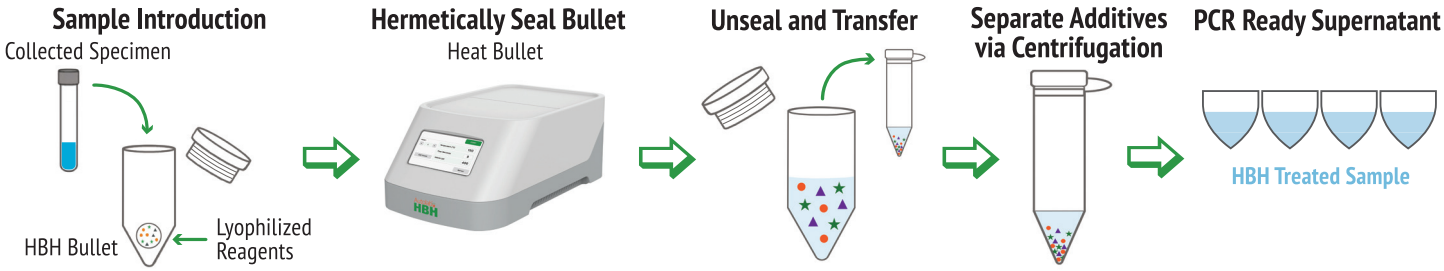
The resulting supernatant contains **both RNA and DNA**, making it ready for a broad range of molecular testing applications.

Clinical or Research Use Case

From Field to Insight: Accelerating Molecular Testing for a Healthier Planet

- Speed up surveillance and testing for pathogens and contaminants with fast sample prep
- Preserve limited environmental and agricultural samples for sensitive downstream molecular assays
- Reduce dependency on complex extraction kits and labor-intensive protocols
- Broad compatibility with soil, water, plant tissue, and other environmental matrices

Standard Workflow



1. Add room temperature sample to each bullet
2. Load HBH bullet on Autolab HBH instrument and heat
3. Centrifuge post-HBH bullet for at least 30 seconds at 3500 x g
4. Transfer the content of each bullet to a microcentrifuge tube and centrifuge for at least 30 seconds at 3500 x g
5. Transfer supernatant to a new tube. Supernatant is ready for downstream molecular testing.

Note: Based on sample types, there might need to be additional steps prior to HBH. Heating time and temperature depends on target.

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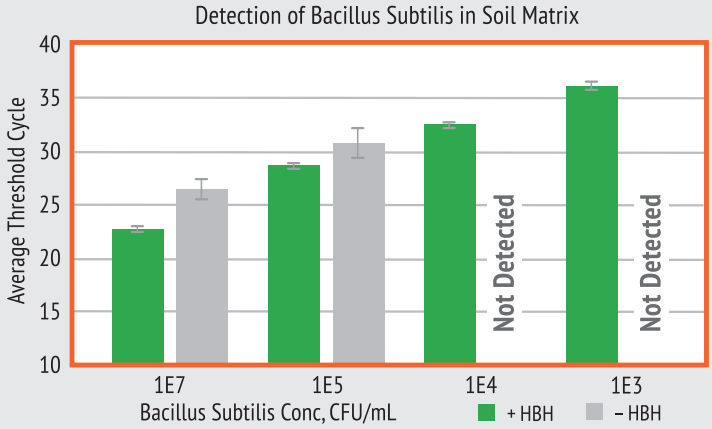
Protocol

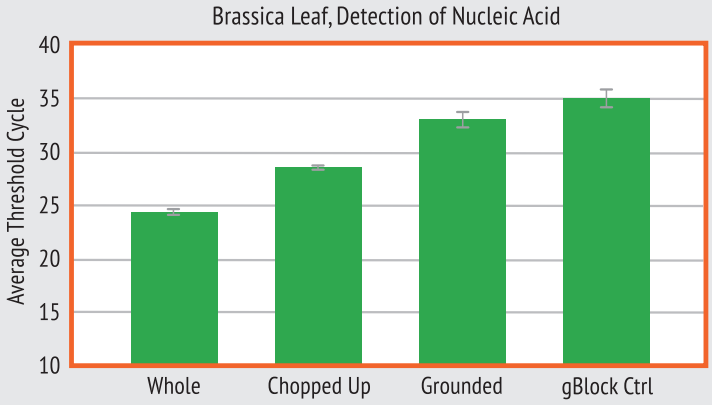
Soil – Bacillus Subtilis

1. Resuspend room temp soil sample in buffer and vortex
2. Centrifuge sample at least 15 mins at 3,000 x g
3. Add only the supernatant to the HBH bullet
4. Set the Autolab HBH according to below:
   - Temp: 130°C
   - Hold Time: 0 sec
   - Sample Volume: 400uL
5. Load HBH bullet on Autolab HBH instrument and heat
6. Centrifuge post-HBH bullet for at least 30sec at 3500 x g
7. Transfer the content of each bullet to a microcentrifuge tube and centrifuge for at least 30sec at 3500g
8. Transfer supernatant to a new tube. Supernatant is ready for downstream molecular testing.



Plant – Brassica

1. Add Brassica leaf (whole, chopped or ground) to a microcentrifuge tube and resuspend with buffer
2. Vortex well
3. Centrifuge sample at least 15 mins at 3,000 x g
4. Add only the supernatant to the HBH bullet
5. Set the Autolab HBH according to below:
   - Temp: 130°C
   - Hold Time: 0 sec
   - Sample Volume: 400uL
6. Proceed with steps 1 – 5 from the standard protocol



Sample Volume and Kits

Sample Volume (uL)	Kit Catalog Number
300 – 600uL	HBH-K01
700 – 1000uL	HBH-K02

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