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Protocol status: Working
We use this protocol and it's working

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Dung Spherulite Analysis and pH Testing

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ABSTRACT

The dung spherulite and pH testing methods used for sediment samples from Yavne, Israel, based upon the methods from Smith et al. 2019.

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Fail-Safe Practices

1 Wiping down all equipment, surfaces, and tools used with soap and water followed by acetone (beginning and end of every day of the project).

2 Plating one slide of Cargille Immersion Oil (Type B) and viewing them under microscopy to ensure no contamination.

3 Calibrating analytical balances.

Sample Preparation - pH testing

4 Washed 20 x 150 mL beakers and labeled them 1-20.

5 Added 10.00 g of sample from each sample bag in their respective numbered beaker. I then wrote down the weight of the actual weights of the 10 g in an Excel sheet.

6 Added 25mL of water into each of the beakers. I ensured there was enough water to insert the pH probe without it touching sediment after it settled.

7 Left samples to sit overnight.

pH Testing

8 Using the Vernier software (the Vernier software that we will be using is the same as the pH meter and has a USB cable which allows us to see the pH values on our computer); https://www.vernier.com/downloads/graphical-analysis/. The bottom part of the probe that measures the pH must be completely submerged in the water but cannot touch the sediment that settles at the bottom. Ensure there is enough distilled water to place the probe in the proper place.

9 The same pH meter is being used for all 20 samples. After each sample the equipment must be carefully rinsed with distilled water to avoid contamination.

Dung Spherulite Analysis

10 Labeled every slide “dung spherulites - Yavne sample name”

11 Placed the slide with the drop of Cargille Immersion oil (Type B, code 1248) on the slide into the analytical scale, the slide was placed on a plastic cap to make it more easier to take out and put in the slides in the scale. Everything was then zeroed/tared.

12 ~0.0020g of sample was placed on the slide in the Immersion oil. The weight was recorded.

13 Removed the slide from the analytical balance. Spread the sample and immersion oil together with the very edge of the coverslip to ensure no sample loss from the slide. Dispersed the sediment as evenly as possible and placed the coverslip on top of the slide.

Microscopy Analysis

14 Plug in the microscope, green button turns on, and light button is another separate button says "hal 100" above it. Turn that on as well.

15 Start at low magnification and increase to 400x, to view dung spherulites, with cross-polarizing filter on.