Berlese apparatus

64204-88

USES:

Experiment 1: Determination of soil organisms

The ecological importance of soil organisms lies in their activity as destruents of plant substance. They are thus an important link in material cycles. Changes in individual ecofactors, e.g. soil moisture, can have far-reaching consequences for further degradation and conversion processes in the soil, e.B. humification.

Experiment 2: Determination of soil moisture

Many living beings, but especially soil organisms, depend on a certain humidity of their environment. Too low or too high soil moisture can have a life-limiting effects on these organisms. They therefore actively seek out the moisture that appeals to them (moisture preferendum). Only under optimal conditions can they carry out their decomposing activity and thus contribute to the cycle of substances.

MATERIAL:

The Berlese apparatus contains the following components:

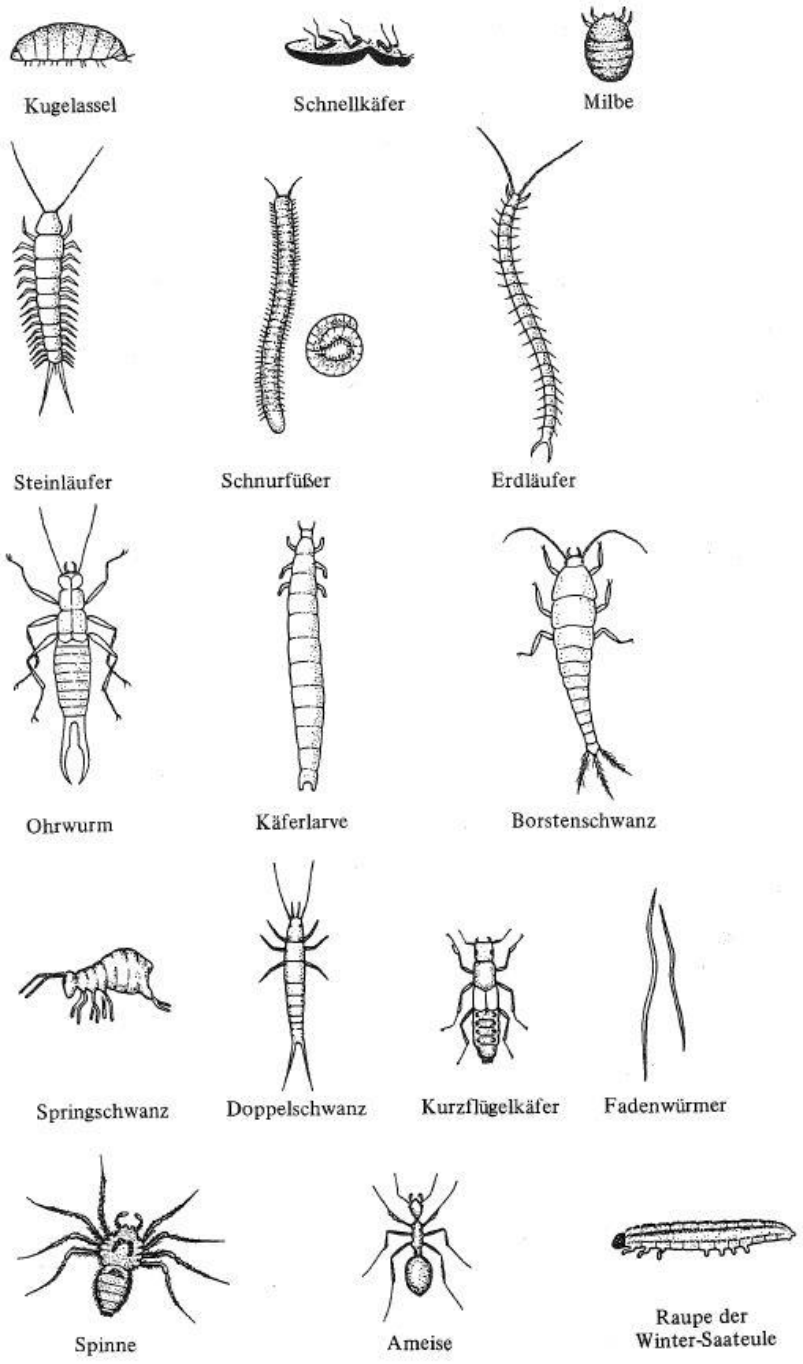
- Lamp with high heat generation
- Stand material for attaching the lamp above the soil sample
- Screens with different mesh sizes

PERFORMING THE EXPERIMENTS:

Experiment 1: Determination of soil organisms

- Set up Berlese apparatus according to figure.

- Select sieve with mesh size 2 mm.
- Underneath, place a sieve with the smallest mesh size to collect the soil organisms.
- Distribute the soil sample evenly on the sieve.
- Illuminate the sample evenly from a short distance (30 cm).
- Then transfer the expelled soil organisms from the collection sieve into a petri dish.
- Use a stereomicroscope to determine the individual organisms with the help of the figure and note their species and number:



Experiment 2: Determination of soil moisture

Variant 1: Finger sample: The finger sample allows a rough estimate of the moisture

state of a soil:

- Dry: Soil feels dry, cohesive soils are firm and hard, sandy and humous soils are loose and dusty.
- Fresh: Soil feels moist, even under strong pressure no water drips off.
- Moist: When pressing the sample, moisture escapes, fingers become significantly moist.
- Wet: When the soil sample is taken, water drips out.

Variant 2: Determination of the percentage of water content: The soil sample is weighed, then dried, then weighed again.

EVALUATION:

Light and heat (drying out of the soil) drive away the organisms in the soil sample that fall through the sieve into the collection container. With the Berlese apparatus, however, only the organisms that can pass through the sieve can be detected. Larger organisms remain in the soil sample and must be counted separately.

For the evaluation of the experiments, the determined number of organisms within an animal group shall be assigned to the respective water content of the soil samples examined. From the result of the individual tests, the moisture preferendum of individual animal species can be inferred.