Fecal Collection and Preservation

Wildlife Conservation Society and Stesha Pasachnik, Apr 2014

Feces can be collected without disturbing an animal and as such does not require a CITES permit. Depending on the testing required there are different methods of handling and/or preserving feces.

Supplies

SAF Fixative, 15 ml vial in packages of 12 or 120/box; Remel: www.remel.com/catalog
Cary-Blair w/indicator, 12 -288 vials/pk; Remel: www.remel.com/catalog
Disposable gloves
Some way to pick up the feces - spoon, plastic spatula, gloved hand, etc.
Marking pen
Container to place feces in (paper bag, large vials, small vials)

Preservation Solution (5% buffered formalin; not used for genetics)

1. Add equal volumes of 10% buffered formalin and water to make a 5% buffered formalin solution.
2. Place any parasites collected from feces or necropsy in 5% buffered formalin using a volume of fixative solution that is 3-4 times the volume of feces.

Alternatively, fecal parasites can be preserved in alcohol:

Internal Parasite Preservation Solution (70-80% ethanol)

96% ethanol - Add 3 parts ethanol to 1 part water to make ~ 70 % ethanol solution.

Procedure

1. If the sample will be used for ***molecular studies*** it should be dried thoroughly in a paper bag. Then it can be placed in a large vial containing silica beads in the bottom and a layer of filter paper in between the beads and the scat. While in storage it should be frozen. The DNA will be extracted from the epithelial cells on the outer layer of the scat thus this layer should not be disturbed in transport or storage.
2. If the sample will be frozen for nutrition studies etc., place in a vial that will withstand freezing in liquid nitrogen or -80°C.
3. If the samples will be examined fresh, a plastic fecal floatation container will do.
4. If the samples are to be examined later for identification of parasites, use SAF media or 5% buffered formalin.
5. If a bacterial culture is to be obtained, place in a sterile container, or directly onto swab, and then place the swab into media (Cary-Blair, Amies with charcoal etc.).
6. Label tubes with species name, ID, and date of collection.

Fecal Preservation in RNAlater

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Feces collected in RNAlater can be archived for molecular PCR analysis for genetic, gut microbiome, or pathogen screening studies.

Supplies

Disposable gloves
Tool for handling feces - spoon, plastic spatula, or a 1 ml pipet tip cut in half
Lab marking pen
RNAlater (RNA stabilization reagent)
2.0 ml PCR-grade screwcap microtubes
Plastic transfer pipette

Procedure

RNAlater preserves both DNA and RNA in feces.

1. Place 1 ml of packed volume of feces in the tube and using a plastic transfer pipette add 1 ml of RNAlater and cap the tube. RNAlater should be added to the feces at a 1:1 ratio to ensure efficient penetration and preservation of the nucleic acid.
2. Vortex or shake the tube vigorously to homogenize the sample.
3. Store the sample as follows: RNAlater preserves nucleic acid (particularly RNA) for up to 1 day at 37°C, 7 days at 15-25°C, or 4 weeks at 2-8°C, allowing transportation, storage, and shipping of samples without ice or dry ice.
4. When not transporting samples, they should be archived at -20°C or -80°C.
5. Label tubes with species name, ID, and date of collection.

Sources of materials

2.0 ml PCR clean screwcap microtubes can be purchased from Fisher Scientific: Sarstedt Cat. No. 72.694.006

RNAlater can be purchased from Life Technologies: Cat. No. AM7021