

### (i) Bryophytes (mosses, liverworts, hornworts) and lichens.

Bryophytes and lichens should *not be pressed* when collected because the pressing process distorts the form of the plant and destroys some of the critical morphological features.

Detach the specimen from the substrate by hand or by use of a knife blade, taking care to include a narrow layer of soil or bark underneath the plant. Collecting lichens that grow on rocks can be more difficult, and may require some of the rock to be chipped away with a hammer or geological pick.

Place the specimen in a brown paper bag—never use polythene bags. However, remember that some bryophytes, for examples species of peat moss (*Sphagnum*), may contain large amounts of water. Remove as much of the water as possible by gently squeezing prior to placing specimen in paper bag. To make sure that the plants dry quickly, it is usually necessary to open the bags to the air or fan (if available) as much as possible. This is especially true in the wet tropics, where it is often difficult to dry any type of botanical collection. Once the specimen has dried, remove the excess soil and place the specimen back in an envelope and keep in a dry place until ready for despatch to an herbarium for identification.

### (ii) Algae.

#### Freshwater algae

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Large algae and any attached microalgae can be collected by hand or with a knife, more easily in shallow water than deep. However, the risks associated with tropical waters, such as larvae of parasites, crocodiles, and other ↵ predatory animals, strongly indicate the use of various mechanical aids (Fosberg and Sachet 1965). The collection should include at least part of the substrate (e.g. rock, plant, or wood) if possible. When searching for freshwater algae, it is important to search all habitats in the body of water being investigated, including the edge of stones in fast-flowing water, surface of aquatic plants, dam walls, and any floating debris. In running or slightly turbid waters, a simple viewing box made from transparent Perspex enables attached algae to be more easily observed (Entwistle and Yee 2000–). A 10× hand lens is often required to determine if material is fertile. Microscopic floating algae (phytoplankton) can be collected with a mesh net (e.g. with 25–30 µm pores) or, if present in sufficient quantity (i.e. colouring the water), by simply scooping a jar through the water. Water samples can be left overnight allowing the algae to settle and concentrate on bottom of container. Squeezing peat moss (*Sphagnum*) and other mosses, or some aquatic flowering plants is a good way to collect a large number of species (Entwistle and Yee 2000–). Algae growing on soil are difficult to collect and study, many requiring culturing before sufficient materials are available for identification. An understanding of the morphology of freshwater algae is very useful when making collections (e.g. Wehr and Sheath 2003).

In addition to the standard information provided by the collector (see below), the field notes should include information on: whether the water is saline, brackish, or fresh; whether the collection site is terrestrial or a river, stream, or lake; whether the alga is submerged during water level fluctuations or floods; whether the water is muddy or polluted; whether the alga is free-floating or attached, and if the latter, the type of substrate to which it is attached; and the colour, texture, and size of the alga.

Initially, algae can be stored in a container (bucket, jar, bottle, or plastic bag), with some water from the collecting site. The container should be left open or only half filled with liquid; wide, shallow containers are better than narrow, deep jars. For long-term storage, specimens can be preserved in liquid (Entwistle and Yee 2000–; Entwistle et al. 1997), dried, and/or made into a permanent microscope mount. Seek advice from professional phycologists for specific advice and instruction.