Sample preparation for simultaneous CN/CNS stable isotope analysis

Preparation of benthic and pelagic organisms for stable isotope analysis.

Benthic or pelagic organisms should be pre-sorted alive to genus or species level using a stereomicroscope. The organisms for CNS stable isotope analysis are rinsed with artificial seawater. Small organisms such as copepods can be transferred directly into small tin capsules (3.2 * 4.0 mm, e.g. Hekatech, Wegberg, Germany). Larger organisms are dried and ground in a mortar before a subsample is weighed in. Drying should be carried out at 60°C for at least 24 h.

Preparation of seston samples for stable isotope analysis

Seston can be filtered onto a 0.8 µm polycarbonate membrane (PC 1110610, diameter 25 mm; Corning, NY, USA) or onto a GFF filter. The loaded filter is rinsed with artificial seawater for CNS stable isotope analysis. The still wet biomass can be carefully removed from the surface of the membrane filter using a metal spatula and transferred directly into a tin capsule. The sample should be dried at 60°C for about 24 h.

When using a glass fibre filter for CNS stable isotope analysis, rinsing with artificial seawater is also necessary. Afterwards, the filter must first be dried at 60°C for approx. 24 h. Using a scalpel and tweezers, a defined area of the uppermost fibre layer is then removed and transferred to a tin capsule (5 * 9.0 mm, e.g. Hekatech, Wegberg, Germany).

Preparation of sediment samples for stable isotope analysis

Sediment samples must be dried and ground in a mortar or ball mill and washed with MilliQ water to remove the salt load. Partial samples are transferred to small tin capsules and weighed in.

Preparation of tissue samples for stable isotope analysis.

Tissue samples must be dried, homogenised and, if necessary, treated with a solvent to remove stored fats (e.g. fish muscle samples). Partial samples are transferred into small tin capsules and weighed in.

All weighing procedures should be performed with a microbalance. The sample and standard preparation procedure for CNS stable isotope analysis always included the addition of ~0.25 mg vanadium pentoxide (V_2O_5) to each sample to ensure complete combustion.