MoMiC – Modular MiCrocorer

The Modular MicroCorer (**MoMiC**) is a precision instrument designed for extracting high-quality wood microcores from living trees. Building upon the proven principles of the widely used Trephor microcorer, the **MoMiC** (Fig. 1A) introduces a modular architecture that significantly enhances versatility, durability, and ease of use in field conditions. A flexible approach to microcoring.

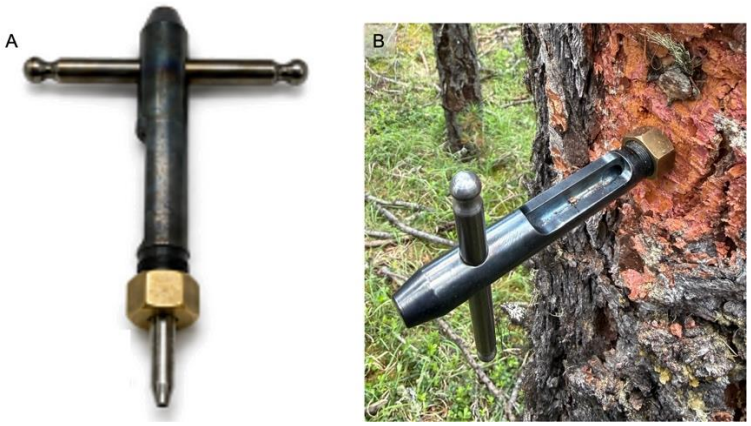

Figure 1. (A) The **MoMiC** microcorer showing its compact design, transverse handle, and interchangeable sampling point. (B) **MoMiC** in use for extracting a wood microcore from the stem of a living tree.

The **MoMiC** consist of four principal components: a main body with an integrated T-handle, an interchangeable coring tip (2.0, 2.5 and 3.0 mm internal diameter), a locking nut, and a sample extractor. Manufactured from high-grade C70W steel with oil-blackening treatment for corrosion resistance, the instrument body provides a robust platform for repeated field use. The interchangeable tips are precision-machined from 440C martensitic stainless steel, heat-treated to achieve an optimal hardness of 50–58 HRC, and feature a finely ground cutting edge that preserves the anatomical integrity of extracted microcores. The complete instrument weighs only 135 grams, offering handling characteristics comparable to the original Trephor.

Field operation and recommendations for use

The **MoMiC** operates using the identical sampling procedure established by the original Trephor, ensuring seamless adoption by researchers familiar with micro-coring techniques. The selected tip is secured to the instrument body, positioned perpendicular to the stem surface, and gently driven into the trunk using a rubber mallet (Fig. 1B). After reaching the desired depth, the instrument is extracted, and the microcore is removed using the sample extractor for preservation and subsequent processing.

Field testing conducted on *Pinus sylvestris* L. and *Larix sibirica* Ledeb. in late July 2026 demonstrated that all three tip diameters consistently produced intact microcores suitable for standard histological processing (Fig. 2). While all three tip diameters performed effectively in field trials, the 2.5 mm internal diameter offers the optimal balance for routine xylogenesis studies. Compared with the 2.0 mm tip, the larger sample is easier to manipulate during extraction, embedding, and microtome sectioning, reducing the likelihood of sample loss or damage. The 2.0 mm and 3.0 mm tips remain valuable options when smaller or larger sample volumes are required, respectively.

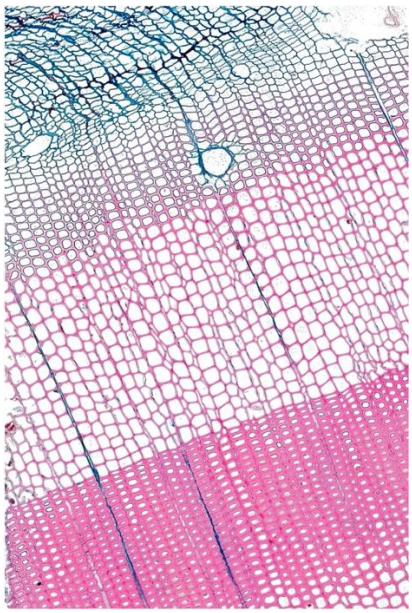

Figure 2. Transverse section of *P. sylvestris* microcore sampled with the MoMiC.

For technical specifications, availability, and further information, please contact the developers.