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Technical Note: An improved guideline for rapid and precise sample preparation of tree-ring stable isotope analysis

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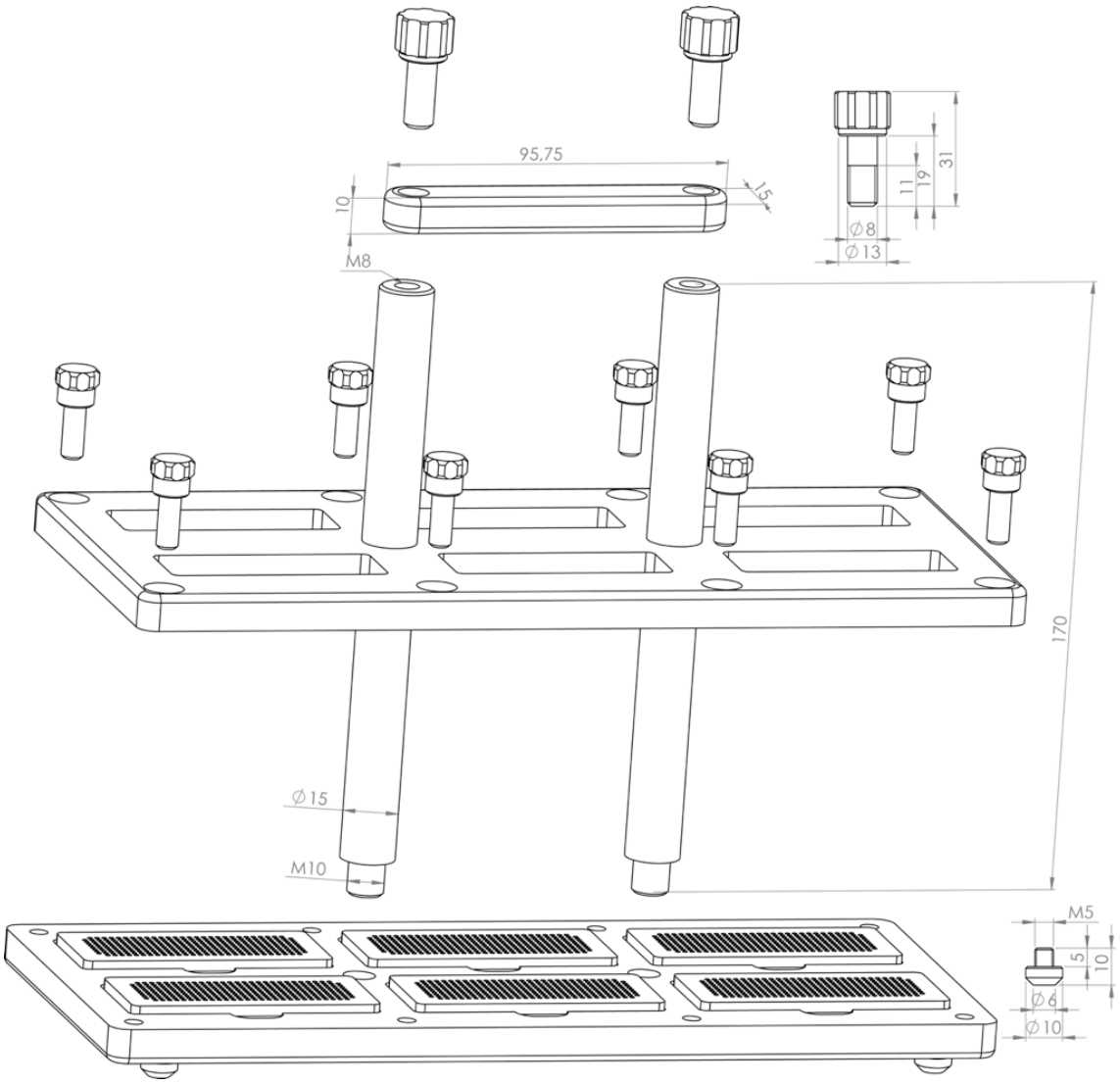

Figure S1a Technical design and dimensions of the extraction device.

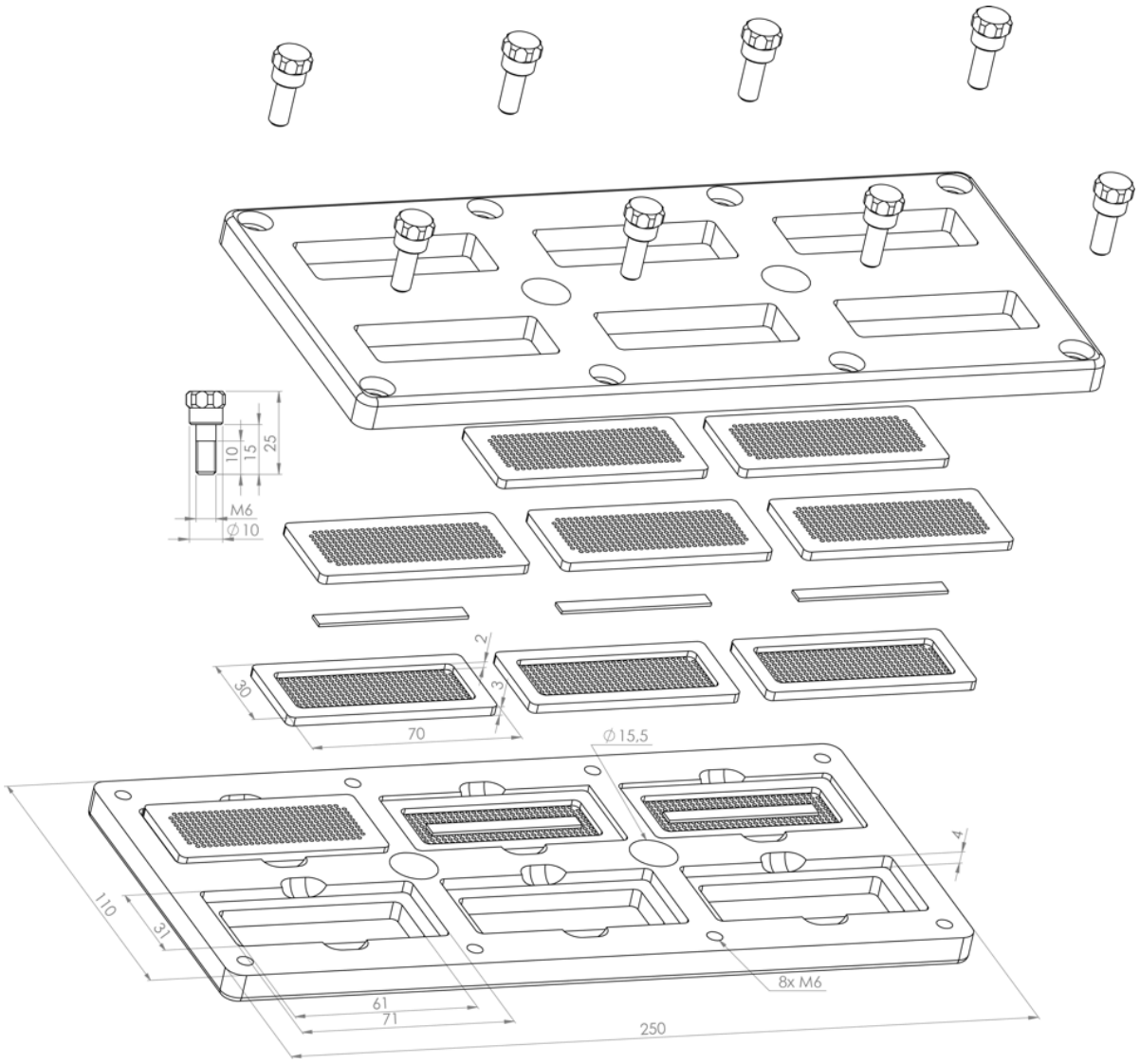

Figure S1b Technical design and dimensions of an individual extraction unit

Notes S1 Technical notes of the extraction device.

The extraction device (250 x 110 x 125 mm) is made of two main components:

1. punching sheets function as sample holders (size: 70 x 30 mm) and
2. a casing, consisting of a lower (250 mm x 110 mm, 2 mm thick) and upper mount (250 mm x 110 mm, 10 mm thick) enclosing six rectangular wells (71 x 31 mm, 4 mm deep) which hold the punching sheet sample holders

The chemical solutions can percolate through the punching sheet holder by rectangular holes (60 x 20 mm).

Each extraction unit has two round holes (ø 25mm; middle hole position: 55 and 62,5mm B/L from left and right casing site, respectively) to give a place for bolts. The first extraction unit (bottom) has two screws threads instead of holes. The bolts have to be screwed in the first casing (bottom casing) the following units can be easily piled up of each other. On the top of the bolts a handle has been installed enabled a safety and costumer friendly handling of the device. Protruding screw heads generate sufficient space between the extraction units ensuring appropriate circulation of chemical solutions at constant temperature.

The extraction device is placed into a glass container (250 x 110 x 125 mm) that is made of single borosilicate glass plates and is glued together with aquarium glue (e.g. clear silicone waterproof sealant (Loctite), Henkel AG & Co. KGaA, Garching, Germany). The glue is resistant against the chemicals used for cellulose extraction.

About 2.5 litres of chemical solution are necessary for each extraction step.

After each extraction process the shaking water bath, tubes and all other equipment are cleaned and dried, and metal components are treated with teflon spray to protect against corrosion due to the sodium chlorite treatment during the cellulose extraction process.

Table S1 Site characteristics and tree species sampled.

	Genus	Species	Sampling site	Altitude	Reference
coniferous wood	Pine	*Pinus sylvestris*	vicinity of Zurich, Switzerland	Subfossil wood	Pieper et al. (2014)
	Larch	*Larix decidua*	Lötschental, Switzerland	2000 m asl	Treydte et al. (2014)
	Spruce	*Picea abies*	Lötschental, Switzerland	2000 m asl	Treydte et al. (2014)
	Juniper	*Juniperus seravschanica*	Sary Chelek, Kyrgyzstan	1300 m asl	-
	Douglas	*Pseudotsuga menziesii*	vicinity of Freiburg, Germany	500 m asl	Jansen et al. (2013)
angiosperm wood	Oak	*Quercus robur*	Telegrafenberg, Germany	60 m asl	-
	Teak	*Tectona grandis*	Donoloyo, Indonesia	380 m asl	Schollaen et al. (2013)
	Cedar	*Cedrela lilloi*	Purissima, Bolivia	-	Brienen et al. (2012)
	Baobab	*Adansonia digitata*	Klein Bolayi, South Africa	571 m asl	Slotta et al. (2014)
	Beech	*Fagus sylvatica*	Telegrafenberg, Germany	60 m asl	-

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