

Sectioning amber with Rowiak TissueSurgeon: Proof of principle

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Introduction

Amber is the fossilized resin of trees. Sectioning amber is a problem as it is quite hard. Common methods either produce sections of poor quality as they put mechanical stress on the sample or amber has to be ground in a time consuming process. Femtosecond laser-technique of the Rowiak TissueSurgeon is a new approach to produce high quality sections of amber in short time.

Material and Methods

Pieces of amber from a common necklace were sectioned into two pieces with a diamond saw (Buehler Isomet, Buehler GmbH, Duesseldorf, Germany). The remaining blocks were mounted on a microscope slide with Polytec Epotec 301 (Polytec, Waldbronn, Germany), and cured over night (fig. 1). Sections were prepared with the Rowiak TissueSurgeon between 20 and 50 μm thickness with integrated OCT control (fig. 2). Afterwards, samples were cover-slipped with the mounting medium.

Results

Desired sections were prepared at thicknesses between 20 and 50 μm . Sections were clear and translucent (fig. 3). Thickness of a sample can be calculated by OCT imaging independent of mounting layer thickness. Translucency of amber gives few signals in the OCT image, just the adhesive surface of amber can be displayed in OCT image. This translucency is very important to image inclusions in samples of amber.



Fig. 1: Amber mounted on microscope slide with Epotec 301

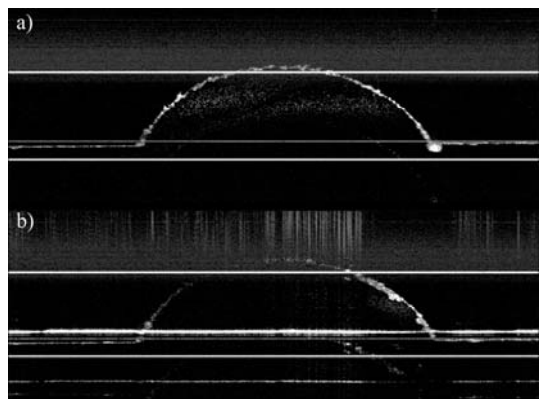


Fig. 2: OCT image of amber before sectioning (a) and after sectioning (b). In the center, the channel of the necklace is visible.

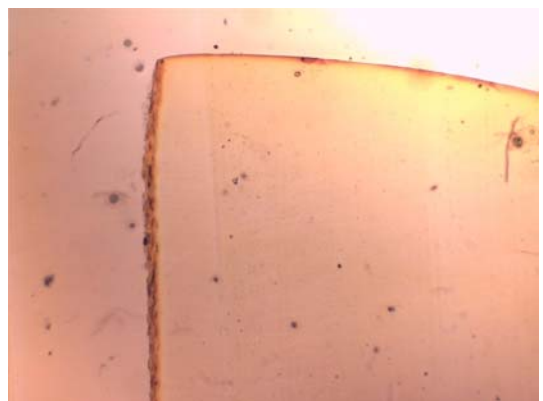


Fig. 3: Microscope image of amber sectioned with Rowiak TissueSurgeon (sample from Fig.2)