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.

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

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.

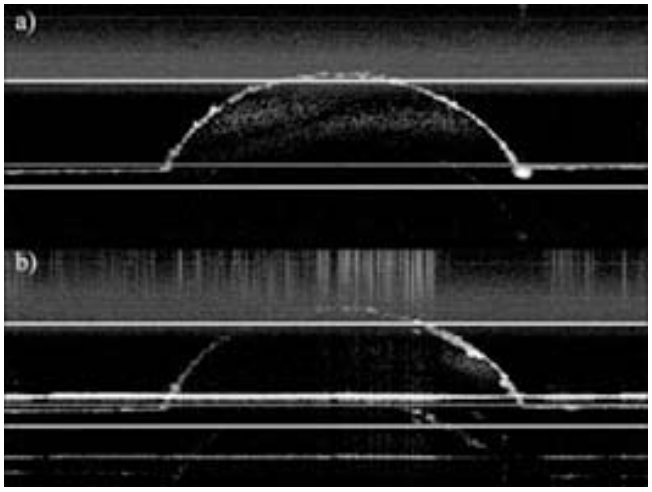

Fig. 2: OCT image of amber before sectioning (a) and after setioning (b). In the center, the channel of the necklace is visible.

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.

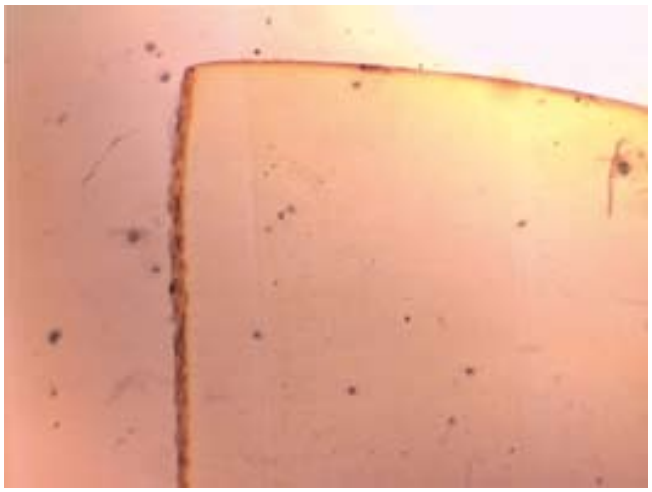

Fig. 3: Microscope image of amber sectioned with ROWIAK Tissue Surgeon (sample from Fig. 2).