

## CinnaDent - Plant-based substances against tooth decay

### Development status

#### Phase 3

**Technology validation and implementing it in real environment.** Testing the technology outside of the laboratory and its adjustment to external conditions.

### IP protection status

Patent - CZ 309633 International application PCT/CZ2020/050011 European patent application EP20714469.2

### Partnering strategy

*Collaboration, licensing*

### Institution

**Palacký University Olomouc**

**Vlastník**

**Univerzita Palackého v Olomouci**

### Challenge

The use of natural substances in areas such as cosmetics and hygiene products has been a highly discussed issue in recent years. In the case of using such natural raw materials that can also be obtained locally or at the place of production, such production also represents a very ecological approach.

### Description

During our research into natural products at Palacký University in Olomouc, we found that a blend of a cinnamic acid derivative with a certain plant extract exhibits synergistic antimicrobial activity against *S. mutans* and other microorganisms involved in producing dental cavities. This mixture is therefore suitable for use in mouthwashes and toothpastes. The effect of such hygiene products show comparable or better effects than commonly used substances, with the added value of the synergistic effect of both components and the use of locally produced crops and natural substances. Since obtaining these derivatives from natural sources is not economically viable, we developed a synthetic production method that allows for larger-scale production while maintaining acceptable production costs. The produced derivatives were subjected to thorough testing together with natural plant extracts, and we demonstrated their effectiveness. We verified this effectiveness with two functional prototypes, which showed the possibility of practical use in the composition of mouthwash and toothpaste. The testing included in vitro skin irritation tests, tests of the effectiveness of the preservative system, cytotoxicity, stability studies, and sensory tests, focusing mainly on taste. The results of these tests confirmed not only the functionality of the individual components but also their suitability for final processing into products.

### Commercial opportunity

For commercial applications, our primary focus is on manufacturers of

hygiene products, such as mouthwash, toothpaste, and similar items. With its natural origin and effectiveness that matches or surpasses commonly used substances, it represents an outstanding and innovative alternative.