Fluorocem

Domain: Healthcare (Dental)

Unmet Need & Opportunity

Complexity in detecting deep-seated cement residues

- It is hard to identify and remove cement residues before they set
- It is difficult to detect cement residues smaller than 2mm

Challenges in detection techniques

- **Radiography**: Fails to detect small particles (size less than 2 mm) effectively.
- **Laser Fluorescence:** Ineffective for detecting Glass Ionomer Cement

Stage of Development

TRL: 6

The carbon quantum dots-enhanced dental cement is demonstrated in more rigorous clinical trials or in real-world dental procedures. The effectiveness of fluorescence in preventing peri-implant disease by improving cement removal is further validated.

Applications / Use case

- Fluorocem allows for the quick and precise detection of even the smallest cement residues.
- Fluorocem improves post-procedure outcomes by ensuring thorough cement cleanup, enhancing implant longevity and oral health.

Technology Description

Carbon quantum dots are a biocompatible, non-toxic, and cost-effective material. Their superior binding properties ensure uniform mixing with dental cement, introducing fluorescence that improves the detection of residual cement. This is particularly beneficial for identifying particles smaller than 2mm and those located in the interproximal areas (distal and mesial) of the teeth. By enabling thorough cement removal, this innovation helps to prevent peri-implant disease.

Market Scope

The global dental cement market was valued at approximately $1.5–2 billion in 2023 and is expected to grow at a CAGR of 5-7% between 2024 and 2030.

Value Proposition

A fluorescent dental cement incorporating carbon quantum dots enables high-precision detection of residual cement in dental procedures. This technology enhances patient safety, reduces complications like peri-implantitis, and improves dental workflow efficiency, offering a cost-effective and biocompatible solution for modern dentistry.

IP Status

Indian Patent app: **IN202341028986**

(Priority/Filing Date: 21/04/2023)

Transaction Opportunity

Exclusive, Non-Exclusive Licensing & Option License Agreement (co-develop or collaboration for further validation)

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