



**“IN VITRO BIOCOMPATIBILITY TESTING OF PEEK DENTAL  
IMPLANT MATERIAL USING CULTURED FIBROBLASTS”**

By

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## **ABSTRACT**

**Purpose:** PEEK (polyetheretherketone) is a synthetic polymer being used increasingly as a novel dental implant material due to its iso-elastic nature and better mechanical properties. This study analyzes the cytotoxicity and biocompatibility of PEEK which helps to improve its bioactivity and ensure widened future clinical prospects.

**Methods:** Samples of PEEK dental implant material were added to murine T3T fibroblasts which were cultured in Dulbecco's modified eagle medium at 37°C. After 24 hours incubation at 37°C and 5% carbon dioxide, the medium was replaced with 200 micro liter of medium which contained extracts of PEEK implant material. Cell morphology was analyzed.

**Results:** The biocompatibility of PEEK dental implant material evaluated using standard biocompatibility tests conveyed no significant signs of cytotoxicity with the fibroblasts.

**Conclusion:** With analogous physical and mechanical properties to bone, PEEK has proved to be a potent biocompatible dental implant material.

**Keywords:** PEEK (Polyetheretherketone); dental implants; cytotoxicity; fibroblasts; Colony formation assay