

## Abstract

**Objective:** To evaluate the cytotoxicity of two formulations of Thai white Portland cement and Mineral Trioxide Aggregate on human periodontal ligament cells (PDL) using MTT assay.

**Material and methods:** Two formulations of TWPC and WMTA were tested with human PDL cells, cultured in a 24-transwell culture plate. Each test material was mixed with sterile distilled water at the powder and liquid ratio equal to 1 g:0.35 ml and 0.2 gram of mixed material was inserted into each transwell culture insert. No material was put in the transwell culture insert of the control group. The effect of leachable toxic substances to cells was evaluated after 72 hours of diffusion through 0.45  $\mu$ m porous membrane of transwell culture insert using MTT assay. The optical density values of the solution were read by spectrophotometer at a wavelength of 540 nm.

**Results:** The percentages of cell viability of WMTA, TWPC<sub>1</sub> and TWPC<sub>2</sub> groups, when tested with PDL cells, were 109.43, 110.67 and 108.42, respectively. No statistically significant differences were found among percentages of cell viability between WMTA and TWPC groups and were not different from the control group as well ( $p>.05$ ).

**Conclusion:** Two formulations of TWPC and WMTA were not toxic to human PDL cells at 72 hours exposure.

**Key words:** cytotoxicity, MTA, Thai white portland cement