

Int Endod J. 2007 Oct 11; [Epub ahead of print] Links
Toxicity evaluation of root canal sealers in vitro.
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Aim To compare the toxicity of methacrylate resin-based root canal sealers with sealers based on epoxy resin and silicone by two-well established cell culture methods. **Methodology** Specimens of AH Plus, EndoREZ, RoekoSeal and Epiphany were prepared for direct contact in the Millipore filter diffusion test and as extracts in the MTT assay. Mouse fibroblasts (L929) were used as toxicity targets. Differences in cytotoxicity between fresh and set specimens and between the extracts of root canal sealers were determined by t-test ($P < 0.05$). **Results** In the filter diffusion test, freshly mixed Epiphany and AH Plus were rated severely toxic and RoekoSeal and EndoREZ nontoxic. When set, Epiphany was moderately toxic, whereas AH Plus, RoekoSeal and EndoREZ were nontoxic. Epiphany was significantly more toxic than RoekoSeal and EndoREZ ($P < 0.05$). In the MTT assay with set specimens, Epiphany was rated severely toxic; AH Plus and RoekoSeal slightly toxic; and EndoREZ nontoxic. Epiphany was significantly more toxic than the other three materials in this test ($P < 0.001$). **Conclusion** The multi-methacrylate resin-based (Epiphany) root canal sealer was significantly more toxic to L-929 cells than the silicone-based Roeko Seal and the single methacrylate-based EndoREZ root canal sealers. AH Plus showed intermediate toxicity.

PMID: 17931390 [PubMed - as supplied by publisher]