



## *In Vitro* and *In Vivo* Toxicology Evaluation to Determine Suitable Biomedical Polymers for Development of a Papain-Containing Drug Delivery System

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**SUMMARY.** Papain has been known by many decades for wounded tissues repair. However, papain stability is not high enough to be commercialized in a stable pharmaceutical form; therefore its use is limited. The strategy to entrap papain into a polymeric matrix to provide an adequate drug delivery system consists of an alternative to this problem. The purpose of this study was to assess *in vitro* and *in vivo* four polymers cytotoxicity and ability to cause cutaneous irritation to be applied as a suitable papain delivery system. A Monocomponent (MSD) and Bicomponent Silicone Dispersions (BSD) and, Natural Rubber Bicenrifuged Latex (NRBL) and an Acrylic Adhesive (AA) were selected. The cytotoxicity was firstly assessed by the Neutral Red Uptake Method. Non-cytotoxic polymers were then submitted to *in vivo* Cutaneous Irritation Test. Both silicone dispersions were found non-cytotoxic, and NRBL and AA polymers showed cytotoxicity. MSD and BSD polymers did not cause any cutaneous reactions.

**KEY WORDS:** Cutaneous irritation test, Cytotoxicity test, Drug delivery system, Papain.

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