CONCLUSIONS

In this study, the graft copolymer was prepared from natural latex by vulcanization with 10 kGy of gamma radiation and graft with ethyl methacrylate using 5 kGy gamma ray. The grafted natural latex, the so-called graft copolymer, was then investigated for its ultrastructure, physical and mechanical properties as well as cellular biocompatibility. The results from all studies showed that

1. The graft copolymer had comparable surface hardness to the Coe Supersoft® which was used as the standard group in this study.
2. The graft copolymer had less water absoption than the Coe Supersoft®. The lest water absoption is an ideal property for the soft lining material.
3. The graft copolymer had higher tensile properties, tensile bond strength and tear strength than Coe Supersoft® ($p<0.05$).
4. The graft copolymer showed incomplete bonding to the denture base material.
5. The graft copolymer was less stained with the water soluble dye but moderately stained with fat soluble dye.
6. The graft copolymer showed good cellular biocompatibility to the human gingival fibroblasts.

These results indicated that grafting of ethyl methacrylate to the gamma irradiated vulcanized latex improved the physical and mechanical properties as well as the cellular biocompatibility of the latex. Therefore it would be worth to modify the graft copolymer developed by this protocol for using as denture soft lining materials.