

CHAPTER VI

CONCLUSION

This longitudinal study determined the HA level changes in human GCF collected from teeth undergoing orthodontic tooth movement. The competitive-based ELISA for HA and the protein assay were used to quantify the HA levels and total protein contents, respectively, in GCF. Seven upper canines and three upper central incisors were included in this study. A summary of results were presented as follows:

1. The HA levels in GCF could be detected from both experimental canines and control incisors with varying HA levels throughout the whole treatment periods.

2. The cyclical pattern of HA level changes was observed in both canines and incisors throughout the study. This cyclical pattern was described as several increases and decreases in HA levels regardless of the applied force on the moving canines.

3. There was no statistically significant difference in the HA levels between canines and incisors in any periods of GCF collection. Sometimes, the HA levels in canines appeared to be higher than those in incisors, but this was not consistent in every period of GCF collection.

4. We could not conclude about the reasons that might have caused the changes in HA levels in both canines and incisors. This might be due to degradative changes of periodontium from orthodontic force or anabolic metabolisms in response to inflammatory processes occurring in the periodontal tissue, since several cytokines involved with inflammation are known to induce HA synthesis both *in vivo* and *in vitro*.