CHAPTER VI
CONCLUSION

This study was designed to compare the magnetic forces generated by commercial and orthodontic magnets and to find a correlation between magnetic force of commercial magnets attracting to orthodontic bracket and size of the commercial magnets and to find the composition of commercial and orthodontic magnets.

The conclusions of this investigation were as follows:

1. The mean of magnetic force of commercial magnets (3.28x3.28x2.0 mm.) attracting to orthodontic bracket were greater than the mean of magnetic force of orthodontic magnets (3.7mm.ϕx2.0 mm.) attracting to orthodontic bracket in various distance at $p<0.001$, $p<0.01$, $p<0.05$. Two factors that might cause the difference of the magnetic force between commercial and orthodontic magnets were types and shapes of magnets.

2. There was negative correlation between size of commercial magnets and magnetic force attracting to orthodontic bracket at distances; initial, 0.25, 0.5, 1.0 millimeters. However, at distances 1.5, 2.0, 2.5, 3.0, 4.0, 5.0 millimeters there was no correlation between magnetic force and size of commercial magnets.

3. The micrograph of the orthodontic magnet and commercial magnet was a grain in the casting. The morphology of orthodontic and commercial magnets surface were heterogenous. The main surface of orthodontic magnet was the back grains and substituted with some white grains. The surface of commercial magnet was combined with back and white grains in different grain sizes and shapes.

4. The composition of orthodontic magnet was iron (Fe), cobalt (Co), copper (Cu), neodymium (Nd), gadolinium (Gd) and the composition of commercial magnets was iron (Fe), cobalt (Co), neodymium (Nd), gadolinium (Gd).

5. X-ray diffraction analysis investigated the crystal structure of orthodontic and commercial magnets. There could not find the data of JCPDS file which has the series of d-spacing value equal the series of d-spacing value of orthodontic and commercial magnets.