

CHAPTER 5

CONCLUSION

The study on the efficiency of RF heat treatment in controlling seed-borne fungi in barley seeds, and its effect on seed quality and chemical composition can be concluded as follows:

1. RF heat treatment can successfully control seed-borne barley diseases, including both internal and external fungi pathogen.
2. Using RF heat treatment at a temperature of 75°C for 3 min showed the most effective treatment results, by completely eradicating *Alternaria* sp., *A. niger* and *Fusarium* sp. Moreover, the same treatment also significantly reduced the infection rates of *A. flavus*, *Penicillium* sp. and *Rhizopus* sp. in the barley seeds.
3. High temperatures and long treatment times affected barley seed moisture content, which dropped by less than 1%.
4. The optimum duration of treatment required to eliminate seed-borne infections whilst not affecting the viability and vigor of the seeds, was 65°C for a 3 minute application period.
5. After treating the seeds with RF application, the total protein level did not change. However, the activity of the dehydrogenase enzyme decreased significantly when the seeds were treated with a temperature over 65°C.
6. The use of an RF application is an effective alternative method for controlling seed-borne fungi, as it uses a short processing time and maintains seed quality.