ABSTRACT

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APPLICATION OF BLACK CUMIN SEEDS (*Nigella sativa* L.) EXTRACT AS A NATURAL PRESERVATIVE IN MEATBALLS
(xi + 73 pages : 11 tables, 13 pictures, 34 appendices)

Black cumin (*Nigella sativa* L.) seeds have been used as spices in various countries and medicinal herbs due to its healing power. Research regarding antibacterial compound in *N. sativa* to inhibit bacteria has been done. The aim of this research was to study the potential of black cumin seed extract also as natural preservative to extend meatball’s shelf life during cool storage. Two methods of extraction were used ie. reflux and maceration. Black cumin extracts obtained by maceration were selected for further study, and showed inhibition against *S. aureus* (13.0-16.2 mm), *P. aeruginosa* (3.6-5.0 mm), *E. aerogenes* (2.7-7.1 mm), *E. coli* (4.0-7.2 mm), *B. cereus* (2.9-5.0 mm), and *L. monocytogenes* (1.8-7.25 mm). Minimum inhibition concentration (MIC) and Minimum bactericidal concentration (MBC) were determined by using Bloomfield (1991) method. The main research is using three different concentrations (3 MIC, 4MIC, and 5 MIC). The best concentration to extend the shelf life of meatballs is selected based on the total plate count (TPC) result within 5 days. Challenge test result showed that black cumin seed extract can inhibit bacterial growth and effectiveness of the extract is 59.29% - 98.53% where the lowest is against *L. monocytogenes* and the highest effectiveness is against *S. aureus*.

Keywords: *Nigella sativa* seeds, antibacterial, black cumin