

Areeya Nawinpakasit 2009: Effect of Ozonated Water Treatment on Seed Quality of Mungbean [*Vigna radiata* (L.) Wilczek] and Black Gram [*Vigna mungo* (L.) Hepper]. Master of Science (Agriculture), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Associate Professor Wanchai Chanprasert, Ph.D. 107 pages.

An efficacy of ozonated water at the concentrations of 12.5, 25.0, 37.5, 50.0 and 62.5 ppm on seed germination and seed-borne fungus infection of mungbean seed cv. Kamphaeng Saen 2 and black gram seed cv. Uthong 2 used for bean sprout production was investigated. Seeds produced in 2006 was treated, the results showed that ozonated water had no effect on seed germination and oversoak percentage, but affected seedling growth rate and times to fifty percent germination (T_{50}). Both mungbean and black gram, seedling growth rate were reduced, especially in the ozonated water at the concentrations of 50.0 and 62.5 ppm. Ozonated water at 25.0-50.0 ppm reduced T_{50} only in black gram. It was found that ozonated water at 25.0-37.5 ppm reduced some seed-borne fungi; *Aspergillus* spp. and *Cladosporium* spp. on mungbean. In black gram, ozonated water reduced *Cladosporium* spp. but did not affect *Macrophomina phaseolina*. Seeds produced in 2007, ozonated water did not affect seed germination, seedling growth rate, T_{50} and oversoak percentage of mungbean and black gram. However, it trended to reduce *Alternaria alternata* on black gram seeds whereas no reduction of *Fusarium* spp. and *M. phaseolina* was found.

Further investigation, ozonated water followed by hot water was used to treat mungbean and black gram seeds for controlling seed-borne fungi and improving seed germination aiming to develop a soaking technique for bean sprout production. Mungbean and black gram seeds; cv. Kamphaeng Saen 2 and Uthong 2, respectively; were soaked in ozonated water at 25 ppm and subsequently soaked in hot water at 27, 32, 37 and 42 °C for 1 hour. Ozonated water followed by soaking in hot water had no effect on germination and seedling growth rate but reduced T_{50} when soaked at 37 and 42 °C. Moreover, ozonated water followed by hot water treatment at 42 °C significantly reduced *Cladosporium* spp. in mungbean and black gram, but did not reduce *Aspergillus* spp., *Curvularia* spp. or *M. phaseolina*.

Student's signature

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