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## Ozone Application for Controlling Seed-Borne Pathogen and Insect in Rice cv. Khao Dawk Mali 105

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### Abstract

The purpose of ozone application was to determine and evaluate the efficiency of ozone to control seed-borne fungi and insect in rice seed cv. Khao Dawk Mali 105. The percentage of seed-borne invasion was 87.50, mainly 69.63 percent was *Alternaria padwickii* and 3.63 percent was *Fusarium moniliforme*. The moisture conditioned rice seeds 11 and 18 percent were treated with 1.25 mg g<sup>-1</sup> rice seed h<sup>-1</sup> ozone for 2, 4, 6 and 8 hrs. The result showed that the ozonation on wet seed (18% moisture content; MC) had more effective than on dry seed (11% MC) in control seed-borne fungi. The results in this experiment indicated that 1.25 mg g<sup>-1</sup> rice seed/ hr ozonation for 6 hr on the wet seed was the best condition for controlling seed-borne fungi in rice seed. The percentage of infected seed was decreased to 26.39, the infection from *A. padwickii* was decreased to 21.57 percent and from *F. moniliforme* was decreased to 1.01 percent. The 8 hr of application time resulted the most efficacy to control fungi such as, the percentage of infected seed decreased to 17.88 and 26.25 in the wet and dry seeds, respectively. The percentages of *A. padwickii* infection were decreased to 14.38 and 20.38 in the wet and dry seed, respectively. The *F. moniliforme* were decreased to 1 and 0.63 percent in the wet and dry seed, respectively. Anyhow, the ozonation time for 8 h significantly reduced seed qualities. Furthermore, the efficacy of ozone in controlling insect estimated by the percentage of *Sitophilus oryzae* mortality at adult stage after ozone treatment with 1.25 mg g<sup>-1</sup> rice seed h<sup>-1</sup> for 1, 2, 3 and 4 h showed that the increasing of ozonation time significantly increased their mortality. The duration of ozonation at the dose of 1.25 mg g<sup>-1</sup> rice seed h<sup>-1</sup> for 3 h could eradicate *S. oryzae* to 100 percent at adult stage.

**Keywords:** Insect damage, ozone, rice, seed-borne fungi