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Fungal inactivation by ultrafine bubble and gaseous ozone technique on rice seeds

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Rice seed-borne fungi and fungal contaminations brought to quantity and quality loss, seed transmission, germination of seedling and rice mycotoxin endanger human health and animal consumption. The potential of ultrafine bubble water (UBW) and ozone gas (OZ) to reduce seed contamination were investigated. Rice seed 'Khao Dawk Mali 105' (KDML105) samples were collected from farmer's barn located in Kalasin province, Thailand for experiments. Afterward, seed-borne fungi were investigated by blotter method and percentage of infection on seeds was determined and classified. The selected seed-borne fungi: *Curvularia lunata* and *Cladosporium cladosporioides* were prepared as spore suspension and treated by UBW at varies sterilization period with different concentrations to inhibit spore germination. The treated spore suspension were diluted, spreaded on PDA agar plate and kept at 25°C for 48 h. The result showed that high concentration of UBW reduced spore germination in both species and significantly delayed fungal germination rate. The OZ treatment were applied on naturally and artificially contaminated rice seed samples at 60 and 120 ppm for 5, 10 and 20 min. However, percentage of contamination of *C. lunata*, *Aspergillus flavus* and *Penicillium* spp. were slightly increased. Additionally, OZ treatments did not significantly effected on seed germination in comparison to untreated.

Biography

Rungsimun Thirawongphinyo has completed his BSc in Biology from Srinakharinwirot University. Currently, he is pursuing his Master's degree in the Department of Plant Pathology, Kasetsart University, Thailand. He has been selected to receive scholarship "The Capacity Building of Kasetsart University Students on Internationalization Program" from Kasetsart University to do research at Kyushu University, Japan for four months. Furthermore, he has participated in 13th National Postharvest Technology Conference 2015 for oral presentation and published two papers in *Journal of Agricultural Science*.

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