

Abstract

Importation of green coffee is vital to the roasting, blending and brewing sectors of the Hawaii coffee industry. Annual importation of > \$116 million of green coffee provides 500 jobs and results in >\$6 million of value-added coffee product. Imported green coffee is fumigated with methyl bromide (MB) to protect in-state coffee production from coffee berry borer (CBB) and coffee leaf rust, two of the world's most destructive coffee pests found in everywhere coffee is grown except Hawaii. Elimination of MB under the Montreal Protocol puts green coffee importation into Hawaii at risk, and an alternative quarantine treatment is needed. ARS initiated research to determine the efficacy of ozone(O₃) under vacuum against CBB. Coffee quality tests and CBB bioassays showed that a 10,000 ppm O₃ fumigation under -30.5 cm Hg vacuum at 13±3°C for 6 h did not reduce coffee quality and controlled all CBB survival or reproduction and indicate that targeting the egg stage may be unnecessary. Therefore, O₃ , which is certified for organic labeling, may be a potential alternative to MB fumigation for green coffee.