

RAPID DISINFESTATION THROUGH THE COMBINATION OF CONTROLLED ATMOSPHERES AND HEAT

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The suggested phase out of methyl bromide production and use by the year 2000 increases the need for alternative rapid disinfestation methods. High temperatures increase metabolic rates of insect pests and thus enhance the lethal action of both fumigants and Controlled Atmospheres. Experiments with the granary weevil *Sitophilus granarius* revealed that treatments with CO₂ (60 % or 90 % CO₂, rest air) or 98 % N₂ (rest O₂) taking 46 days or 77 days, respectively, for complete control at 10°C could be reduced to 8 days for both atmospheres at 35°C and less than 2 days at 40°C. Therefore, valuable products like spices, nuts or herbs that can be heated to such temperatures without loss of quality could be rapidly disinfested by either of the two CAs. Moreover, the data show that CAs hold special promise for warm climates where the stored product temperatures are naturally high. Here, increased respiration rates of all living organisms present and low stored product moisture contents that minimise the risk of condensation, may even allow for continuous hermetic storage under hypoxic conditions.