LOW OXYGEN ATMOSPHERES FOR THE CONTROL OF Callosobruchus maculatus (FABRICIUS) AND Acanthoscelides obtectus (SAY)

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ABSTRACT

Bruchids are major pests of stored legume seeds and are currently controlled most frequently by the use of chemical fumigants and protectants. The use of controlled atmospheres (CAs) has gained popularity in recent times for the control of stored-product pests. This study was undertaken to investigate the influence of CAs on the control of bruchids. Mortality of eggs, larvae, pupae, and adults of the cowpea seed beetle, *Callosobruchus maculatus* (Fabricius) and the bean bruchid, *Acanthoscelides obtectus* (Say) as tested under three nitrogen atmospheres with low-oxygen (0_2) contents of 1%, 2%, and 3%, at two different temperatures: 25°C and 32°C, and at 70% relative humidity. Complete mortality of all eggs, young larvae, old larvae, pupae, and adults of both bruchid pests was obtained at both temperatures within 1-4 days, 3-9 days, 5-13 days, 5-15 days, and 1-5 days, respectively. Mortality of the life stages occurred generally faster at the higher temperature. *A. obtectus* was generally more susceptible to the low-0_2 atmospheres than was *C. maculatus*.