THE SPECIFICITY OF RESISTANCE IMPARTED TO A STRAIN OF *Tribolium castaneum* (Herbst) SELECTED FOR RESISTANCE TO HYPOXIA, AND A STRAIN SELECTED FOR RESISTANCE TO HYPERCARBIA

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Two strains of *Tribolium castaneum*, one selected for resistance to a low oxygen content atmosphere (LOC) and another selected for resistance to a high carbon dioxide content atmosphere (HCC), were used to test the specificity of their laboratory-induced resistance. The LOC-selected strain was exposed to HCC and shown to be susceptible, and the HCC-selected strain was found to be susceptible to LOC. This indicates that survival under hypoxia and hypercarbia require different adaptive mechanisms. Exposure of the LOC-selected strain to anoxia revealed greater tolerance than a non-selected strain. Exposure of both strains to a 60:8:32 mixture of CO_2, O_2, and N_2 revealed that both strains were more resistant than a non-selected strain. Exposure of the selected strains to methyl bromide and phosphine failed to reveal any cross-resistance of the insects to the fumigants.