

Title Phosphine tolerance in two bruchid beetles, *Callosobruchus chinensis* (L.) and *C. maculatus* (F.) (Coleoptera: Bruchidae).

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#### **Abstract**

*C. chinensis* and *C. maculatus* mortality induced by phosphine application was evaluated over a range of fixed phosphine concentrations (0.01-6.0 mg/litre) and exposure duration (0.25-48 h) at 25 deg C and 65% relative humidity. *C. maculatus* (reared on mung bean) was slightly more tolerant of phosphine than *C. chinensis* (reared on chickpea). Increases in gas concentration were more effective than increases in exposure time in achieving complete mortality. The concentrations for 50 and 99% mortality in *C. maculatus* were higher than the corresponding values for *C. chinensis*, except at 0.25 and 1.00 mg/litre concentrations and 48-h exposure period for 99% mortality. A rate-dependent mortality in both species was observed.