

**Title** Evaluation of phosphine gas as a quarantine treatment for obscure mealybug for export markets

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#### **Abstract**

Obscure mealybug (*Pseudococcus viburni* (Hemiptera: Pseudococcidae)) is present in the pome orchards of the Upper Valley of Río Negro and Neuquén. It is a quarantine pest of actual and/or future importance for the markets of Argentina (Korea, Panama, Japan, Mexico, New Zealand). The objective of the present study was to evaluate the efficiency of phosphine gas as a control agent for *P. viburni* against the egg stage, which is the most tolerant developmental stage. The rearing and infestation of *P. viburni* was artificially carried out on 'd'Anjou' pears. Two eggs (300 eggs per treatment) were placed in the calyx of each fruit. Infested fruit were placed in hermetic chambers and received 1000 ppm of phosphine at 0°C, with different times of exposure (I: 24 h, II: 48 h and III: 72 h). For each treatment a control was assigned, which was only exposed to 0°C. When the treatments reached the time of exposure the fruits were ventilated and the evolution of the eggs was observed for 60 days at 24°C. When the eggs hatched, the nymphs were placed on new fruits and were observed until they reached the adult stage. A Multiple Comparison Analysis was used to compare the proportions, using the Bonferroni correction for the comparison of the significance values between pairs. The exposure of the egg stage to a phosphine concentration of 1000 ppm during 48 or 72 h had an efficacy of 99,00 and 98,99% respectively (CI:95%). These results demonstrate a good positioning of treatments II and III as risk mitigation methods for *P. viburni* when this pest is listed as quarentenary for external markets.