

**Title** Effects of short-term controlled atmosphere treatment at elevated temperature on dried fig fruit

**Author** Fatih Sen, Kamer B. Meyvaci, Ferit Turanli and Uygun Aksoy

**Citation** Journal of Stored Products Research, Volume 46, Issue 1, January 2010, Pages 28-33

**Keywords** Dried figs; Controlled atmosphere; Heat treatment; Storage pests; Quality

### **Abstract**

Commercial sun-drying has been practiced around the Mediterranean Basin for many centuries. Dried fruit are goods with a long shelf life but many factors including storage pests may limit their marketability. Before the decision to phase it out under the Montreal Protocol, methyl bromide (MB) was the most widely used fumigant to control storage pests due to its efficacy and relatively low cost. Now there is an urgent need to find MB alternatives for post-harvest use. The present research work comprised 3 experiments in 2005–6 carried out in a pilot fumigation chamber designed by EcO<sub>2</sub> (EcO<sub>2</sub> B.V., AG Numansdorp, The Netherlands). The objective was to test the effectiveness of controlled atmosphere (CA) (decreased O<sub>2</sub> at  $1 \pm 0.5\%$ ) at elevated temperature (41 °C) in controlling the major storage pests, fig moth (*Ephestia cautella*), Indian meal moth (*Plodia interpunctella*), and dried fruit beetle (*Carpophilus* spp.). In addition, major quality parameters of the hosts, dried figs, were analyzed soon after the treatments, and after 4 months of storage under ambient conditions, in comparison with MB-treated controls (60 g/m<sup>3</sup> for 24 h). The CA treatment can be recommended as a post-harvest MB alternative for dried figs since it provided 100% control of the pest species tested, had neutral or positive effects on dried fruit quality and required comparatively short (c.26 h) treatment times compared with other MB alternatives.