

Donahaye, E.J., Navarro, S., Bell, C., Jayas, D., Noyes, R., Phillips, T.W. [Eds.] (2007) *Proc. Int. Conf. Controlled Atmosphere and Fumigation in Stored Products, Gold-Coast Australia. 8-13th August 2004.* FTIC Ltd. Publishing, Israel. p. 597.

## **ALTERNATIVE METHODS OF STORED GRAIN FUMIGATION**

I. KALINOVIC, M. IVEZIC, AND V. ROZMAN

*Faculty of Agriculture in Osijek, Trg Sv. Trojstva 3, 31000 Osijek, Croatia,  
E-mail: kirma@pfos.hr*

### **ABSTRACT**

Investigations carried out over several years, to find alternative methods for control of storage pests in Croatia, were aimed at discovering new active substances extracted from mediterranean aromatic plants. Single essential oils, as well as their components, proved to have a fumigant effect, particularly to the phosphine resistant pest species. By gas chromatography of lavender, laurel, rosemary, and thymus oils, the nine most significant oil components were determined, as follows: 1,8-cineole, camphor, eugenol, linalool, carvacrol, thymol, borneol, bornyl-acetate, and linalyl-acetate. These isolates were tested for control of the most prevalent pests in silos and storages of this area, namely: *Sitophilus granarius*, *Sitophilus oryzae*, *Sitophilus zeamais*, *Rhyzopertha dominica*, *Tribolium castaneum*, *Oryzaephilus surinamensis* and *Chrysothrips ferrugineus*. Apart from their fumigant effect, the contact and repellent activity of the single isolates were determined. Such investigations could make it possible for new preparations to be found in the near future that are less harmful to humans and the environment.