

The lethal toxicity of major components of the essential oils of *Ocimum kilimandscharicum* and *O. kenyense* and of selected blends of these against *Sitophilus zeamais* and *Rhyzopertha dominica* were compared with those of the full blends of the essential oils. The compounds were assayed in amounts and proportions present in the minimum 100% lethal dose of the oils. Whereas a major component of *O. kilimandscharicum* was found to be largely responsible for the toxic action of its essential oil against *R. dominica*, the results with the other treatments indicated that the toxic action of the essential oils were due to the combined effects of different components, either with or without significant individual toxic action of their own against the insects. The significance of the results and their implication in screening and using plants and their phytochemicals for pest and microbial control are highlighted.