

**RE-INVESTIGATION OF THE FEMALE SEX PHEROMONE
OF THE LEGUME PODBORER, *Maruca vitrata*
(LEPIDOPTERA: CRAMBIDAE)**

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ABSTRACT

The legume podborer, *Maruca vitrata* (Lepidoptera: Crambidae) is a serious pest of legumes throughout Asia and Africa. Previous workers identified (*E,E*)-10,12-hexadecadienal (EE10,12-16:Ald), (*E,E*)-10,12-hexadecadienol (EE10,12-16:OH) and (*E*)-10-hexadecenal (E10-16:Ald) as sex pheromone components of female *M. vitrata*. They developed a lure that attracts male moths in the field in Benin but they failed to attract male moths in the laboratory, or to develop a lure that attracts male moths in Asia or the rest of Africa. Synthetic lures also attracted significant number of female moths. The objectives of this study were to re-examine the sex pheromone of female *M. vitrata* with the aim of developing synthetic lures that attracted male moths in a wind-tunnel and in the field in both Africa and Asia and determining the reason for attraction of female moths to synthetic pheromone lure. Procedures were developed for mass rearing *M. vitrata* of African and Indian strains using synthetic diet without loss of vigour and reproductive potential. The female sex pheromone was re-examined using gas chromatography linked to mass spectrometry (GC-MS) and gas chromatography coupled with electroantennography (GC-EAG). In this study two new components, (*E*)-10-hexadecenol E10-16:OH and (*Z,Z,Z,Z,Z*)-3,6,9,12,15-tricosapentaene (ZZZZZ3,6,9,12,15-23:H), were identified as a part of the *M. vitrata* pheromone blend along with (*E,E*)-10,12-hexadecadienol (EE10,12-16:Ald). Laboratory wind-tunnel tests showed attraction of male moths to EE10,12-16:Ald and blends with E10-16:OH or ZZZZZ3,6,9,12,15-23:H equal to that of natural female extract for the first time. Field trials were conducted in West Africa in Burkina Faso, Ghana, Nigeria, Benin and at two locations in India. Although variable trapping results were obtained, in Burkina Faso the major component, EE10,12-16:Ald alone, caught significantly more moths than other synthetic blends consisting major and minor components. A similar result was found in India and the trap catch was significantly increased when E10-16:OH was added to the major component in a ratio of 10:90. Synthetic blends also captured female moths in West Africa but not in India. The role of the newly identified pheromone components and possible reasons for the female moth capture are discussed.