

Sex Pheromone of the carob moth, *Apomyelois* (syn: *Ectomyelois*) *ceratoniae* (Zeller, 1839) (Lepidoptera: Pyralidae) in different Iranian geographic populations

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The carob moth, *Apomyelois* (syn: *Ectomyelois*) *ceratoniae* (Zeller, 1839) (Lepidoptera: Pyralidae), is a worldwide pest of several nuts and fruits including carobs, almonds, and dates. The pomegranate is one of the most ancient edible fruits. In Iran, pomegranates are grown in several climate regions. According to Shakeri (2015), up to 82540 hectares of this fruit have been cultured in Iran in recent years. The sex pheromone components, emitted by virgin female of *A. ceratoniae* were characterized by headspace solid phase microextraction SPME and subsequently analyzed by gas chromatography/mass spectrometry. The low release rate of pheromone from the gland, common to the most of the lepidopteran insects, is one of the limiting factors in pheromone research studies. "Monomorphic" variation occurs when geographically isolated populations of the same species use the same compounds in different ratios. As a result, sex pheromone components of five virgin females from different geographical regions of Iran were analyzed comparatively by SPME. We started an investigation to determine the level of individual variation in the female sex pheromone composition of carob moth in 2015 & 2016. By extracting the pheromone in the glands of females of *A. ceratoniae* populations in Iran, the major component, (Z,E)-9,11,13-tetradecatrienal, and minor components, (Z,E)-9,11-tetradecadienal and (Z)-9-tetradecenal, were identified in different geographic populations. The ratios of three sex pheromone components (trienal: dienal: monoenal) in different regions of Iran were as below: 10:1.3:0.7 in Zanjan, 10:1.3:0.5 in Razavi Khorasan, 10:1.2:1 in Mazandaran, 10:1.1:0.9 in South Khorasan, 10:0.9:0.9 in Sistan and Yazd, which is similar to the data ratio of Baker et al. (1991), 10:0.9:1.4 in Markazi, 10:0.5:1 in Semnan, 10:0.45:0.43 in Isfahan, 10:2.5:2.1 in Lorestan. The results showed that there might be a monomorphic variation of sexual communication in the population of this insect pest in Lorestan. No variation was seen among the other geographic populations conforming the results previously obtained by Ziaaddini (2010).

Keywords: *Apomyelois ceratoniae*, GC-MS, geographic variation, microextraction, pomegranates