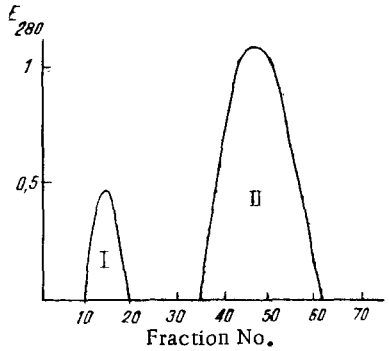

Fig. 2. Gel filtration on a 90 × 2 cm column of Sephadex G-75 in 0.01 M phosphate buffer, pH 5.7. Rate of elution 12 ml/h.

the proteinase very slightly, but this cannot be explained by the influence of the SH reagent on the active center but is rather a consequence of features of the conformational structure of the enzyme molecule. A decrease in activity was observed under the action of the soybean inhibitor. We assumed that the enzyme that we have isolated belongs to the serine group of proteinases. (The authors express their gratitude to G. N. Rudenskaya and V. M. Stepanov for providing the possibility of working with the affinity sorbent).

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ISOLATION AND IDENTIFICATION OF A COMPONENT OF THE SEX PHEROMONE OF *Orgyia gonostigma*

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In recent years, *Orgyia gonostigma* F. (*Lepidoptera:Limantriidae*) (scarce vaporer moth) has become an economically important pest in apple orchards of the intensive type. Its sex attractant is unknown, although it could be used for combatting this pest, and we have therefore begun an investigation of the sex attractant of *O. gonostigma*.

An extract of the sex attractant was prepared by steeping excised terminal segments of the abdomens of virgin females in methylene chloride. To find the components of the attractant we used an approach that we have described previously [1]. The crude extract, in an amount of 70 female-equivalents, was subjected to micropreparative gas-liquid separation in a column containing the liquid phase XE-60 into 1-minute fractions with the taking of samples into glass capillaries and the subsequent testing of the biological activity of their contents by the electroantennogram (EAG) method [2]. In this way we found one EAG-active fraction with a retention time of 8 min and retention indices of 2508 and 2200 determined on columns with polar (XE-60) and nonpolar (Apiezon L) phases. A comparison of these values with tabular values of retention indices [3], suggested to us that the EAG-active substance could be a monounsaturated ketone with 21 carbon atoms.

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In actual fact, when the EAG-active fraction was chromatographed on columns with liquid phases of different polarities — OV-101, OV-17, and Silar 10C — peaks were detected which coincided in their retention times with the peaks of cis-heneicos-6-en-11-one. On a capillary column (silicone capillary column, 50 × 0.2 mm, SE-54 phase), the retention time of the component was 42.92 min (standard — 43.03 min).

The mass spectrum of the substance corresponding to the peak with the retention time of 42.92 min practically coincided with that for cis-heneicos-6-en-11-one and contained a peak corresponding to the molecular ion with m/z 308. The presence in the mass spectrum of fragments with m/z 167 and 169 showed quite unambiguously the presence of a keto group in the 11 position. A strong peak with m/z 124 corresponded to the hydrocarbon fragment $[CH_2{=}CHCH{=}CHC_5H_{11}]^+$ and can serve as a proof of the existence of a double bond in position 6 of the pheromone molecule. A mass chromatogram of the EAG-active fraction on the fragments with m/z 124, 139, and 169 showed their presence only in the peak with a retention time of 42.92 min.

In order to detect the presence of heneicosadien-11-one , a mass chromatogram was taken of this fraction on fragments with m/z 122, 137, and 169, and also fragments with m/z 122, 137, and 306. In neither of the mass chromatograms was the presence of heneicosadien-11-one detected.

It has been established previously [4] that cis-heneicos-6-en-11-one, the sex attractant of the North American species *O. pseudotsugata* [5], extremely actively attracts females of the tussock moth *O. antiqua* — a species close to the scarce vaporer moth — and also the females of a number of other species of the genus *Orgyia* [6]. In view of this, it may be assumed that cis-heneicos-6-en-11-one is a common component of the pheromones of all the insects of this genus, including *O. gonostigma*. We therefore assigned the cis configuration to the double bond of the heneicos-6-en-11-one isolated from *O. gonostigma* females.

Thus, from an extract of the sex pheromone of the scarce vaporer moth we have isolated and identified cis-heneicos-6-en-11-one. It was impossible to detect the presence of a heneicosadien-11-one in the sex pheromone.

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