

# A Contribution to the Study of the Variability of the Nectaries

## Příspěvek ke studiu variability nektarií

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**Abstract** — The paper summarizes the results of the study of the variability of the nectaries of three species of the genus *Hesperis* L.

### Introduction

The variability of the nectaries in the family *Brassicaceae*, as DAVIS and HEYWOOD (1963) too, wrote, is not yet well known. The author joins, therefore, the present work to his earlier papers devoted to the nectaries (DVOŘÁK 1965, 1967a, 1967b). The study of this variability is highly urgent as this formation represents since the times of VELENOVSKÝ a complex of systematic characters used more or less successfully. Sometimes less successfully mainly because the variability itself was little or not at all taken account of. The investigation of the variability of the flower nectary in the *Brassicaceae* plants is not an end in itself but aiming at phylogenetic and taxonomic conditions.

### Material and method

**Seeds:** *Hesperis matronalis* L.: plants grown from seeds of plants cultivated in the experimental department of the Botanical Gardens in Brno. — *Hesperis sylvestris* CRANTZ: plants from the locality "Zouvařka" near the village Veverská Bitýška; gathered on 29th May 1966. — *Hesperis pycnotricha* BOEB. et DEG.: Hortus botanicus Academiae Scientiarum BSSR Minsk (sub *H. matronalis* L.).

I used the same method described in my first work on nectaries (DVOŘÁK 1965). I equally keep the terminology given in that work. I pictured the nectaries at the same enlargement by Abbé's drafting machine. From each species I investigated nectaries of some 50 flowers belonging to different plants.

### The description of nectaries in references

I have not yet found description of the nectaries of the species *H. sylvestris* and *H. pycnotricha*. All the quotations refer, therefore, to the species *H. matronalis* and (VILLIANI 1905) *H. violacea*.

HILDEBRAND (1879) does not give the description of the nectaries of the species of the genus *Hesperis*.

VELENOVSKÝ (1884 — in Czech): "The glands only lower, in radial direction somewhat lengthened, at the back open by a distinct slit, in front I usually found a small wedge squeezed between both ends; . . . on sides having no projections, they are rather big and protruding above the surface." Picture: Tab. I, fig. 3.

VILLIANI (1905: 400): "Le specie *Hesperis matronalis* L., *H. violacea* BOISS., *Conringia orientalis* (L.) ANDRZ., *C. clavata* BOISS. ecc. hanno due nettarii. circondanti an anello la base degli stami brevi, aperti tuttavia per un breve tratto tra questi ed i sepali corrispondenti."

BAYER (1905: 156): "6. *Hesperideae*. Nur die lateralen (unteren) Saftdrüsen vorhanden und zwar in der Form eines Wulstes, welcher an der Innenseite mit einer schmalen Lücke durchbrochen, an der Aussenseite solid oder auch schmal durchbrochen ist. An den Seiten bildet er kurze seitliche Ausläufer, welche die Basis der Blütenblätter schwach umfassen. Mitunter sind die seitlichen Fortsätze am Ende ein wenig angeschwollen."

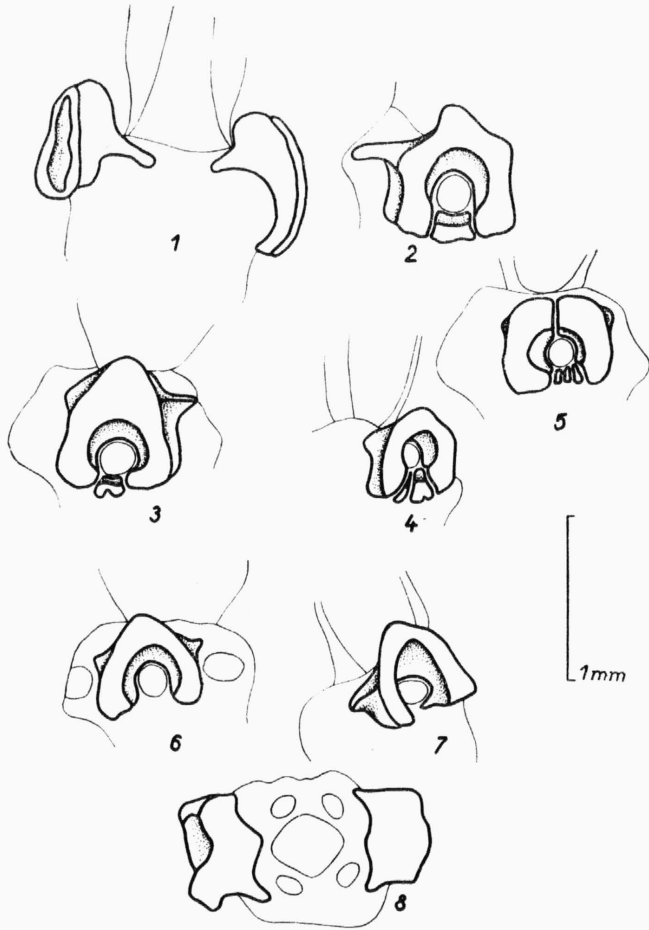


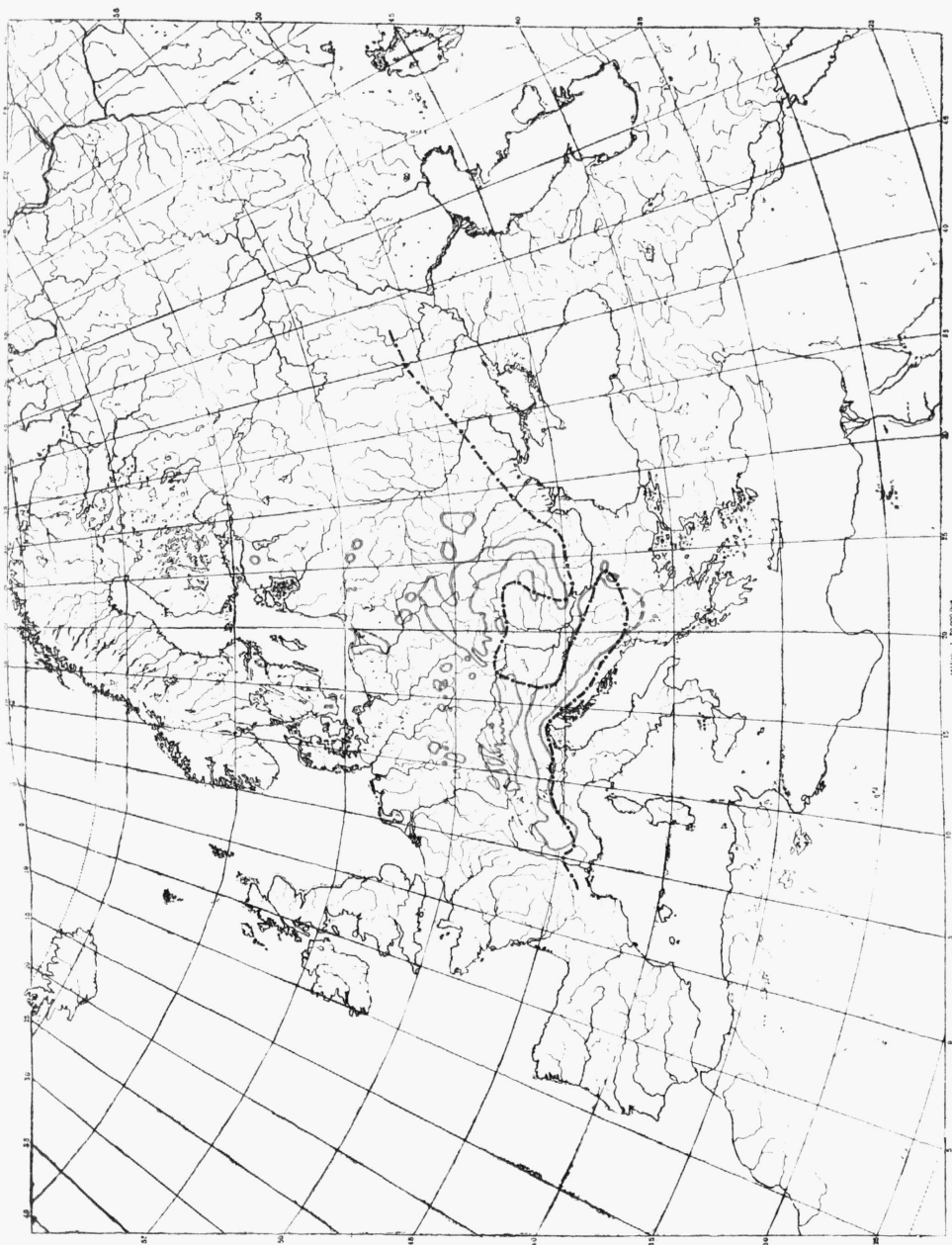
Fig. 1. — Nectaries of the species *Hesperis matronalis* L. — Pictured by DVOŘÁK.

GÜNTHART (1940: 34): "Zwei grosse, den Grund der kürzeren Staubblätter umfassende, besonders nach innen stark entwickelte grüne fleischige Drüsen. Die amphandrischen Teile derselben treten aussen etwas gegen die Medianaxe hin vor, fliessen aber dort nicht zusammen. Die endandrischen Teile sind durch eine feine Transversalfurche zerschnitten."

HAYEK (1911: 223): "*Hesperis* . . . Seitliche Honigdrüsen zu je einem die Basis der kurzen Staubblätter umgebenden, aussen dreilappigen, innen eingebuchteten Ring verwachsen . . . mediane fehlend." Picture: Tab. 9, fig. 35b.

SCHWEIDLER (1911: 357): "*Hesperis*. Drüsen über den Blütenboden hinreichend stark hervorragend, nicht sehr verlängert, zugerundet, vorn und hinten durch eine schmale Spalte offen."

We regret to note that map 2 to the article HADAČ E., SLAVÍK B. et RICHTEROVÁ H. "The Distribution of *Pleurospermum austriacum* (L.) HOFFM. in Czechoslovakia", Preslia No. 4 Vol. 39 (1967) p. 377 was erroneous. We are now printing the correct map.



Map. 2. — Distribution of *Pleurospermum austriacum* (total); red line — area of the species, - - - - - line connecting places with a mean day temperature 20° C or more for 2 months.



*Hesperis matronalis* L. Fig. 1

Lateral nectaries fairly big. They have the shape of a ring, being rarely closed in front and at the back (fig. 3). More often the ring is open on one side (fig. 2, 4, 8, 9) or on both sides (fig. 1, 5, 6, 7). If the nectary has the

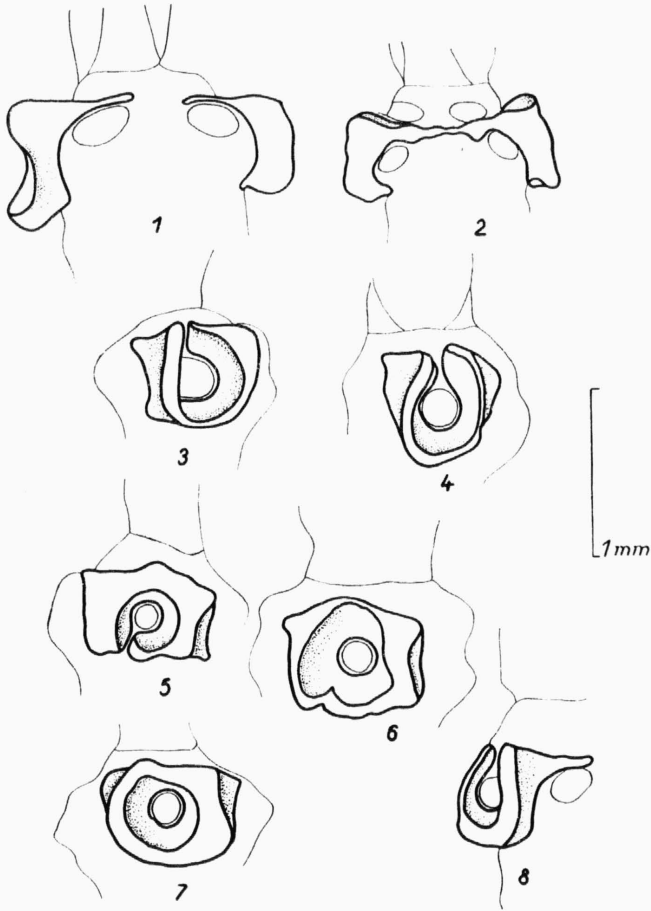


Fig. 2. — Nectaries of the species *Hesperis sylvestris* CRANTZ.  
Pictured by DVOŘÁK.

shape of a ring closed in front and at the back the front edge is usually divides by  $\pm$  deep incisions (fig. 3). Between the free ends of the ring open in front there is usually inserted a smaller wedge (fig. 5, 9) or the edges are only adhering (fig. 1, 6, 7, 8). The back edge of the ring open in front is either  $\pm$  straight (fig. 4) or trifid with the middle lobe lengthened in the direction to the pod (fig. 2, 3, 9). The front edge of the ring open at the back is usually either  $\pm$  straight (fig. 8). The nectaries are fairly high and end at the top in a  $\pm$  flat surface. At the sides lateral ridges project from the nectaries,

sometimes shorter (fig. 2, 3, 4, 5, 8, 9), sometimes lengthened (fig. 1, 6, 7). Rarely fairly lengthened lateral ridges can be found, being closed and heightened already in the median (fig. 6). I have not found the concrecence of these lengthened lateral ridges in the median.

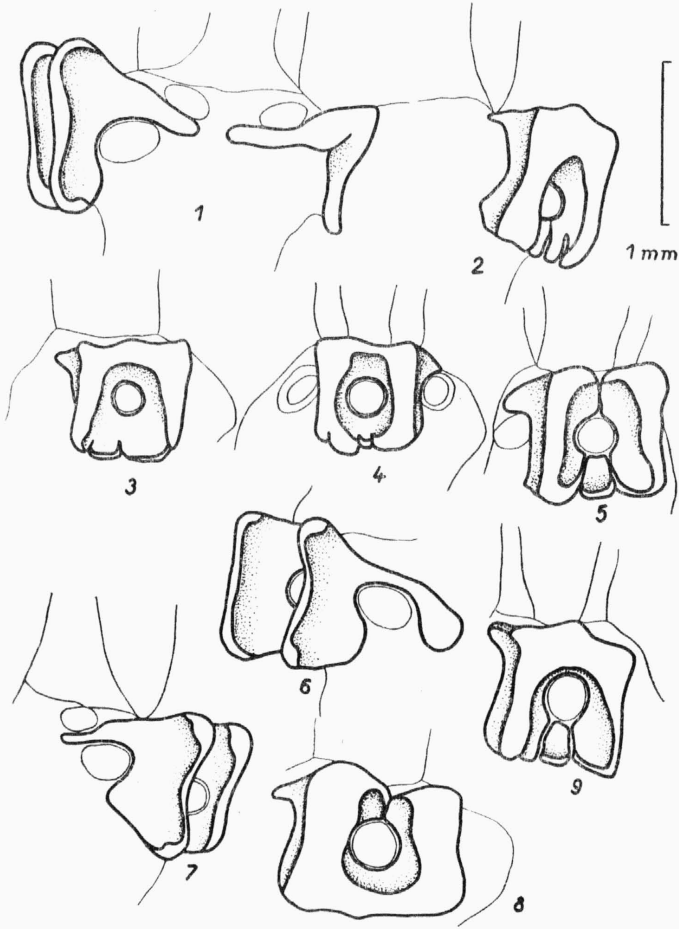


Fig. 3. — Nectaries of the species *Hesperis pycnotricha* BOBB. et DEG. Pictured by DVOŘÁK.

*Hesperis sylvestris* CRANTZ Fig. 2

The prevailing majority of the investigated flowers had only lateral nectaries (fig. 1, 3—8). They were relatively small, having the shape of a ring usually continuous in front (fig. 3, 4, 6, 7, 8) at the back mostly open (fig. 3, 4, 8). Sometimes the ring is closed in front and at the back (fig. 6, 7) or is open only in front (fig. 5). The incision dividing the front edges of the ring is sometimes not entire (fig. 6). The front or back edges of the ring are either  $\pm$  straight (fig. 7) or distinctly trifold with the middle lobe lengthened towards

the pod (fig. 5). The upper surface of the ring is flat, fairly wide (fig. 5, 7). Lateral ridges project at the sides from the lateral nectaries; sometimes they are shorter (fig. 3—7), sometimes longer (fig. 1, 8). I have observed also the union of the lateral ridges in the median. Parts of these ridges are fairly broadened and heightened near the concrescence in the shape of a trihedron. In this case we can take them for median, even if rarely preserved nectaries.

### *Hesperis pycnotricha* BOBB. et DEG. Fig. 3

Lateral, fairly small nectaries, having the shape of a ring usually open in front. Rarely is the ring continuous in front (fig. 1) or, on the contrary, open both in front and the back (fig. 5). The back edge of the ring is often trifid (fig. 2) with the middle part lengthened towards the pod. Sometimes is the back edge arched towards the pod (fig. 3, 4, 6, 7). Between the edges of the ring open in front a small wedge is often inserted: sometimes simple (fig. 3) sometimes double (fig. 4) or even triple (fig. 5). The upper surface of the ring is fairly broad and even (fig. 2—7). From the sides project short lateral ridges from the nectaries (fig. 3—8). Rarely are these ridges lengthened (fig. 1—2).

### Souhrn

Studované druhy rodu *Hesperis* mají téměř jen laterální nektaria. Jen výjimečně byla u *Hesperis sylvestris* a u *Hesperis matronalis* zjištěna i mediální nektaria. Laterální nektaria mají buď tvar souvislého prstence, nebo tvar podkovovitého valu otevřeného vpředu nebo vzadu nebo po obou stranách.

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