

## The sexual generation of the *Andricus kollari*-group in The Netherlands (Hymenoptera, Cynipidae)

by

A. A. WIEBES-RIJKS

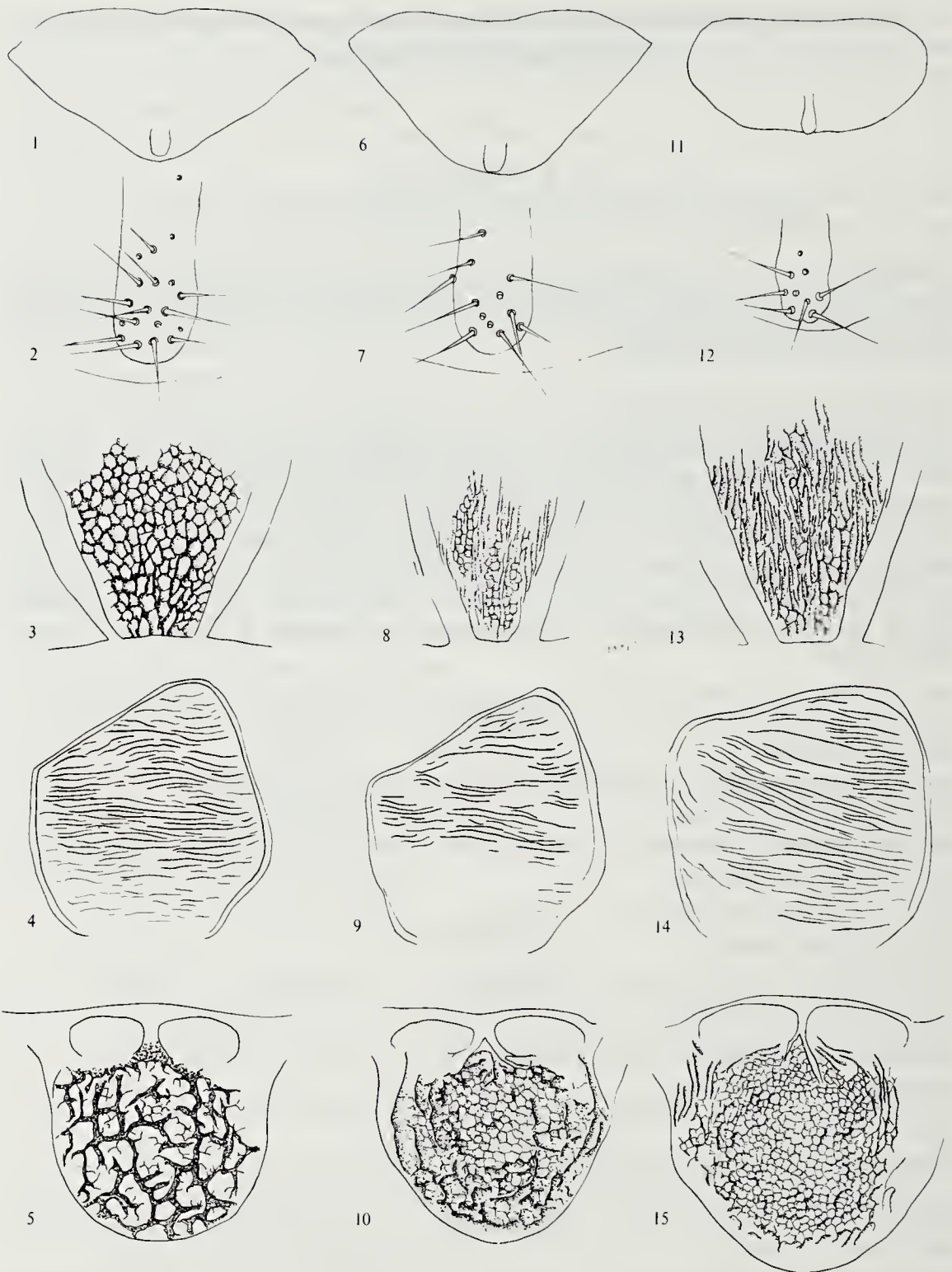
*Afdeling Systematische Dierkunde, Zoölogisch Laboratorium, Leiden*

ABSTRACT. — A differentiation is given of males and females of *Andricus kollari* (Hartig) forma *circulans* Mayr, *A. lignicola* (Hartig) forma *vanheurni* Docters van Leeuwen, and *A. corruptrix* Schlechtendal forma *larshemi* Docters van Leeuwen. Parasites reared from the agamic generations of these galls are recorded.

Three gall-wasps of the species-group of *Andricus kollari* (Hartig) occur in The Netherlands. They have their agamic generations (key to species in Quinlan, 1974) on the indigenous *Quercus robur* L., while the sexual generations, as discovered by Beijerinck (1897: 423-426; 1902) for *A. circulans* Mayr, are found on the imported *Quercus cerris* L. Beijerinck (1882: 132-134) suggested that the *kollari*-gall was introduced in The Netherlands „um das Jahr 1863”, while Marsden-Jones (1953: 195-196) concluded from old records that it had been accidentally introduced, or purposely imported, somewhat earlier in Britain. The *lignicola*-gall was found in The Netherlands in 1942, that of *corruptrix* in 1954 (Docters van Leeuwen & Dekhuijzen-Maasland, 1958: 102, 104).

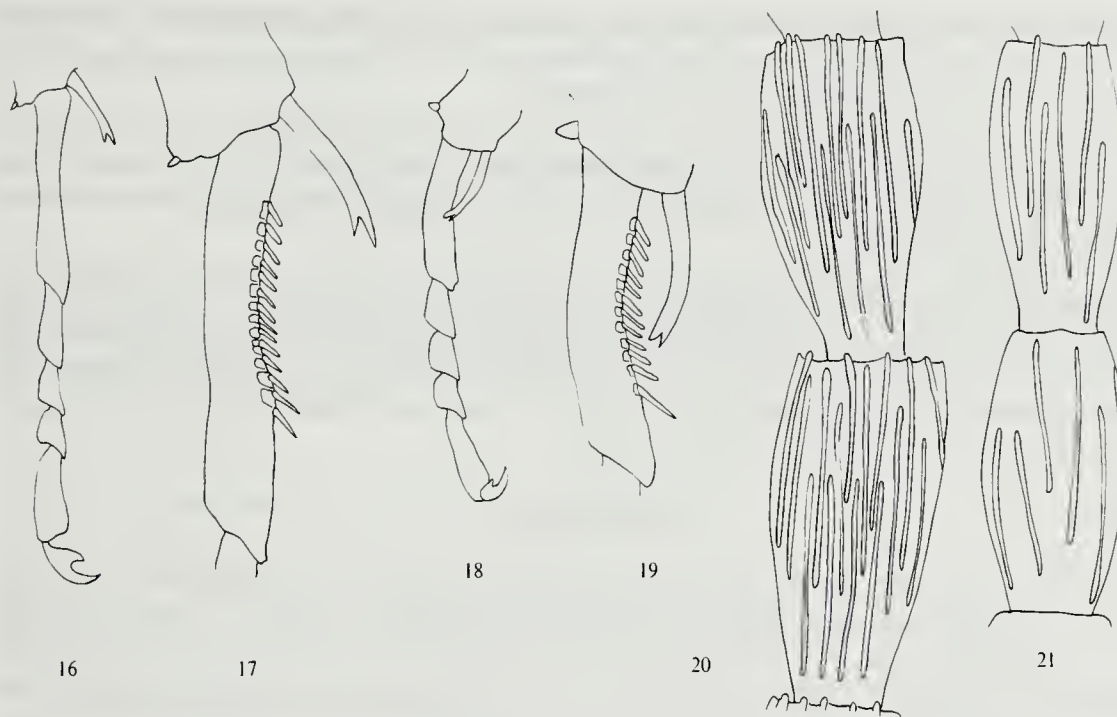
	<i>A. kollari</i>	<i>lignicola</i>	<i>corruptrix</i>
<i>Synergus umbraculus</i> Ol.	N O W (vi vii ix)	Vo (vii)	
<i>Synergus reinhardi</i> Mayr	Ka O Vo W (vi vii)	K Vo W (vi vii)	
<i>Synergus pallidipennis</i> Mayr	W (vi)		
<i>Synergus pallicornis</i> Hartig			O (v)
<i>Synergus rotundiventris</i> Mayr			K (vi)
<i>Synergus gallaepomiformis</i> Fonsc.	W (v vi)	N O V W (v vi)	O (v)
<i>Synergus nervosus</i> Hartig	W (vi)		O V (iv vii)
<i>Synergus albipes</i> Hartig	W (v vi vii)	N W (v)	K (vi)
<i>Eurytoma brunniventris</i> (Ratz.)	W (iv v viii ix)	K (vi)	
<i>Eudecatoma biguttata</i> (Swed.)	W (v vii)		
<i>Eudecatoma variegata</i> (Curtis)	W (v)		
<i>Torymus cingulatus</i> Nees	O (ix)		
<i>Torymus nigricornis</i> Boh.	W (v vi ix x)		
<i>Megastigmus dorsalis</i> (F.)	W (iv v vi)	K (vi)	K O (vi vii viii)
<i>Ormyrus punctiger</i> Westw.			K (vi)
<i>Eupelmus urozonus</i> Dalman	W (v)		K (vi)
<i>Mesopolobus tibialis</i> (Westw.)			Vo (viii)
<i>Mesopolobus amaenus</i> (Walker)			O (vii)
<i>Mesopolobus fasciiventris</i> Westw.	W (vi)		
<i>Cecidostiba geganius</i> (Walker)	W (vi)		

Table 1. Parasites reared from the agamic galls of *Andricus kollari*, *lignicola*, and *corruptrix*. Localities abbreviated as follows: K, Krachtighuizen (near Putten, western Gelderland); V, Vierhouten (northern Gelderland); Ka, Katwijk, N, Noordwijk; O, Oegstgeest; Vo, Voorschoten; and W, Wassenaar (all, near Leiden). The months of capture are indicated by Roman numbers.



Figs. 1-15. Various morphological structures compared for *Andricus kollari* f. *circulans* (1-5), *A. lignicola* f. *vanheurni* (6-10), and *A. corruptrix* f. *larshemi* (11-15): 1, 6, 11, outline of male ventral plate,  $\times 80$ ; 2, 7, 12, setose patch of ventral plate,  $\times 320$ ; 3, 8, 13, mesoscutum,  $\times 80$ ; 4, 9, 14, male mesopleuron,  $\times 80$ ; 5, 10, 15, scutellum,  $\times 80$ .

*Andricus kollari* forma *circulans* was already known to Mayr (1870: 30-31) and duly described. *A. lignicola* (Hartig) forma *vanheurni* and *A. corruptrix* Schlechtendal forma *larshemi* were discovered and named by Docters van Leeuwen (1956), and their galls depicted by Docters van Leeuwen & Dekhuijzen-Maasland (1958), but the wasps were not described. Eady & Quinlan



Figs. 16-19. Male fore tarsus (16, 18,  $\times 80$ ) and basitarsus enlarged (17, 19,  $\times 160$ ) of *Andricus corruptrix* f. *larshemi* (16-17) and *A. kollari* f. *circulans* (18-19).

Figs. 20-21. Fourth and fifth antennal segments of male ( $\times 160$ ); 20, *A. corruptrix* f. *larshemi*; 21, *A. lignicola* f. *vanheurni*.

(1963: 42) knew the male of only *circulans*, but distinguished between the females of *circulans* and *larshemi* (p. 49). As in recent years an increasing number of Turkish oaks (*Q. cerris*) are being planted in Dutch parks and lanes, the probability to find galls of *circulans*, *vanheurni*, and *larshemi*, is much enhanced. I found these galls in Oegstgeest, Voorschoten, and Wassenaar, near Leiden, province of Zuid-Holland; Vierhouten and Krachtighuizen, near Putten, province of Gelderland; and Zundert near Roosendaal, province of Noord-Brabant; and reared the wasps.

As is apparent from the key by Eady & Quinlan (1963), a combination of the following characters differentiates the *kollari*-group from other sexual *Andricus*-wasps:

structure on the mesoscutum, at least in part, reticulate; mesopleuron with some structure, not totally smooth; gaster not strongly compressed; the ventral spine acute, sparsely setose, without a distinct tuft of setae. The expression of some of these characters can also be used to differentiate between the species.

*A. kollari* f. *circulans*. — Number of the sensilla on the male antennal segments moderate (fourth segment: 6-11 sensilla; fifth segment: 6-9 sensilla); mesoscutum (fig. 3) closely reticulate, in male as well as in female wasps; male mesopleuron (fig. 4) striate over the whole surface; female scutellum (fig. 5) in the middle with thick ridges, microstructure faint; male foreleg (figs. 18, 19), especially the basitarsus, relatively short (this applies to about half of the specimens studied); ventral plate (fig. 1) with angles; setose patch (fig. 2) with 11-19 setae.

*A. lignicola* f. *vanheurni*. — Number of sensilla on the male antenna (fig. 21) relatively low (fourth segment: 5-7 sensilla; fifth segment: 6-7 sensilla); mesoscutal structure (fig. 8) longitudinally striate in the posterior part, but rather shallow, the surface less rough than in *larshemi*, more or less alutaceous; male mesopleuron (fig. 9) partly shiny and without structure; female scutellum (fig. 10) much as in *circulans*, but with microstructure; male fore basitarsus usually longer than in *circulans*; ventral plate (fig. 6) as in *circulans*; setose patch (fig. 7) with 10-12 setae.

*A. corruptrix* f. *larshemi*. — Number of sensilla on the male antenna (fig. 20) relatively high (fourth segment: 10-14 sensilla; fifth segment: 8-13 sensilla); mesoscutal structure (fig. 13) longitudinally striate in the posterior part, more distinct than in *vanheurni*, the surface more coarsely structured; male mesopleuron (fig. 14) almost completely striate; female scutellum (fig. 15) in



the middle with a fine microstructure, without thick ridges: this differential character is less distinct in males, but still useful; male fore basitarsus (fig. 16, 17) long; ventral plate (fig. 11) with rounded angles; setose patch (fig. 12) with 8-10 setae.

Parasites. — I did not succeed in rearing parasites from the sexual galls. This may be due to their being so recently introduced, although there are not many known from the original countries either. Askew (1961: 169, table III) recorded three species of *Mesopolobus* Westwood as parasites of *circulans* in Britain.

For the agamic galls, Docters van Leeuwen (1956: 253) mentioned for *lignicola* that thirteen years after its introduction no parasites or inquilines "have yet managed to settle in this country". In the last ten years I reared a number of parasites, listed in the accompanying table 1. The species may be compared with those listed by Fulmek (1968) for *A. kollari* (p. 800-803, some twenty cynipids and fifty chalcidoids), *lignicola* (p. 803-804, ca. ten and twenty species respectively), and *corruptrix* (p. 794, two chalcids only).

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Kaiserstraat 63, 2300 RA Leiden.

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BERLESE, A., 1903-1923 (1977). — COMPLETE ACAROLOGICAL WORKS; collected acarological papers previously published in *Redia*, 1903-1923. L. van der Hammen, ed.; joint publication of Dr. W. Junk, the Hague/Antiquariaat Junk, Lochem. 5 bound volumes. Prijs f 500,—.

Van het omvangrijke acarologische oeuvre van A. Berlese verschenen in het — door hemzelf opgerichte — tijdschrift *Redia* in de periode 1903-1923 een 31-tal artikelen. Onder redactie van Dr. L. van der Hammen van het Rijksmuseum van Natuurlijke Historie te Leiden, zijn deze thans herdrukt, en voor zover nodig van een index voorzien. Een korte biografie van Dr. Fausta Pegazzano gaat aan het geheel vooraf. Voor allen die te maken hebben met de systematische acarologie zal het een welkome zaak zijn dit belangrijke deel van het acarologisch werk van Berlese in één enkele compacte, overigens ook uitstekend verzorgde, uitgave ter beschikking te hebben. — W. N. Ellis.