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NOTES ON THE HYADESIIDAE HALBERT, 1915
AND ALGOPHAGIDAE FAIN, 1974, NOV. TAX. (ACARI, ASTIGMATA),
WITH A REDESCRIPTION OF HYADESIA CURASSAVIENSIS VIETS, 1936
AND H. SELLAI VIETS, 1937

BY A. FAIN *

HISTORICAL ACCOUNT
FAMILY,
SUBFAMILIES REDEFINED
KEYS
SPECIES REDESCRIPTED
BIOGEOGRAPHY

ABSTRACT: Hyadesia curassaviensis Viets, 1936 and H. sellai Viets, 1937 are redescribed and refigured from the typical material. The family Hyadesiidae Halbert, 1915 is redefined and the subfamily Algophaginae Fain, 1974 is elevated to the family rank. A key to the species is given.

HISTORIQUE
FAMille,
SOUS-FAMILLES REDÉFINIES
CLES
ESPÈCES REDÉCRITES
BIOGÉOGRAPHIE


INTRODUCTION

Mites of the families Hyadesiidae Halbert, 1915 and Algophagidae Fain, 1974, n. tax. are known from various parts of the world. These mites are distinguished from all the other Astigmata by their curious biology. The hyadesiids are marine mites; they live in the higher levels of the intertidal zone and are covered by sea water for a great part of the time. They feed mainly on algae. The algophagids live in brackish to fresh water or in fresh water where they probably also feed on algae; some species, however, (e.g. those from Kerguelen Is.) were found on moss, phanerogams or litter of either wet or dry soil.

Until now 20 species, belonging to 5 genera, have been described in these families. Most of the earlier species have been inadequately described and new descriptions have become necessary in order to establish their exact status.

The purpose of this paper is to make a review of the literature on these mites, to redescribe Hyadesia curassaviensis Viets, 1936 and H. sellai Viets, 1937, and to propose a key to families Hyadesiidae and Algophagidae.

REVIEW OF THE LITERATURE

The genus Hyadesia, and the type species H. uncinifer, were described by MEGNIN (1891) from

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several nymphs living in salt or (?) brackish water among Conferva algae, from Tierra del Fuego, in South America.

Michael (1893) described Lentungula g. n. (lentus, flexible : ungula, a little claw) and L. algivorum s. n. (type species) from green algae, Cladophora fracta, at Land’s End, Cornwall coast of England. This new genus was placed in the Tyroglyphidae.

Lohmann (1894) described Lentungula fusca s. p. n. from the shore of Helgoland Island (North Sea : West of Danmark) and of Rügen and Kiel (Baltic Sea : East of Danmark). The mites were found in the intertidal zone among Chlorophyceae.

Berlese (1897) created for the genus Lentungula the subfamily Lentungulinae (= Lentungulina) in the Tyroglyphidae.

Lohmann (1907 and 1908) synonymized Lentungula with Hyadesia and described H. kerguelensis s. p. n. from intertidal algae in Kerguelen Island.

Halbert (1915) erected the family Hyadesiidae for the genus Hyadesia (= Lentungulina Berlese, 1897, = Lentungulinae Michael, 1903).

Oudemans (1927) recorded the presence of Hyadesia fusca in Scheveningen, Holland.

André (1931) described Hyadesia chelopus s. p. n., from a single male specimen in poor condition, of the Trouessart Collection. This specimen was found among algae fixed to a Chiton, from Indian Ocean.

Viets (1936) described Hyadesia curassaviensis s. p. n. from female specimens collected at Rifwal, near Willemstad, Curaçao (Antillas Is.). The mites were found in slightly hypersalted (by evaporation) see water, at a temperature of 31°C. In 1937, Viets described another new species Hyadesia sellai, from Rovigno, Istria, Italy and Split, Dalmatia, Yougoslavia, both on the Eastern coast of Adriatic Sea. The mites (female and males) were found on stones in the intertidal zone, among algae.

Womersley (1961) described Hyadesia vietsi s. p. n. from Biak Island, Netherlands New Guinea. The mites (2 females) were found on Cladophora socialis and red algae in the intertidal zone.

Benard (1961) described two new species, Hyadesia tumida and H. furcillipes from the intertidal zone of North-West of France (Regions of Brittany and Normandy). The mites were found on barnacles and other Cirripedes where they fed on algae, bacteria etc...

Manson (1963) described Hyadesia glynni s. p. n., from Pacific Grove, on the Californian coast, U.S.A. The mites (females and males) were fixed on the intertidal barnacle Balanus glandula.

Hughes (1955) described Algophagus antarcticus g. n. and sp. n. from Heard Island, situated in the Subantarctic zone (see Gressitt, 1970 and Fain, 1974). The mites (females and males) were not collected from salt water as the Hyadesia species but from a freshwater pool.

Hughes and Goodman (1969) described another new genus and species Neohyadesia signyi, from females and males, collected in small pools of fresh to brackish water at Signy Island, South Orkney Islands, in the Subantarctic Region. Blue-green and green filamentous algae were also found in these pools.

Ganning (1970) observed that in Scandinavia Hyadesia fusca is restricted to the green alga Entermorpha ssp.; this species is very tolerant to variations of salinity and serves as food for fishes living in the system.

Fain (1974) redescribed Hyadesia kerguelenensis Lohmann, 1907 and erected for this species a new subgenus Hyadesiella. He described two new species of Hyadesia, M. halophila and H. subantarctica, a new species of Algophagus (A. semicollaris), and two new subspecies, Algophagus antarcticus latinellaris and Neohyadesia signyi punctulata, all from Kerguelen Island. He also created a new subfamily, Algophaginae, for the genera Algophagus Hughes, 1955 and Neohyadesia Hughes and Goodman, 1969. The three hyadesiid mites were found on marine algae of the intertidal zone, while the algophagin species were collected either on fresh water algae or on moss or phanerogams of wet or dry soil.

Fain and Johnston (1975) described Algophagopsis pneumatica g. n. and sp. n., from sub-
merged rocks of the Kings River, California, U.S.A.

FAIN (1975) described Hyadesia travei sp. n. from females and males collected in St Paul Island and New-Amsterdam Island and H. paulensis sp. n. from females found in St Paul. The mites were collected from marine algae.

FAIN and GANNING (1978) described Hyadesia nearctica sp. n. from the Atlantic coast of Canada and U.S.A. The mites (females and males) were collected in tide pools and on upper intertidal rocks in and among green algae mainly Enteromorpha spp. all year around.

FAIN and GANNING (1979) described a new genus Amhyadesia (type species: Hyadesia gynni Manson) and a new species A. californica, from Leo Carillo, on the Southern Californian coast. The mites (females and males) were found on rocks among green algae, in tide pools just below high tide level.

FAIN (1979) redescribed Hyadesia vietsi Womersley, 1961 from the typical material, he described a new subspecies Hyadesia fusca tenuipilis from Finland and recorded a new locality for H. fusca (Ostende in Belgium). These specimens from Belgium were found on stones among green algae in the intertidal zone.

DIVISION OF THE HYADESIIDAE

FAIN (1974) divided the family Hyadesiidae in two subfamilies: Hyadesiinae and Algophaginae. The recent discovery of new genera and species in both groups leads us to reevaluate the characters on which these taxa were based and to give them the family rank, with the following definitions:

1. Family Hyadesiidae Halbert, 1915 (= Lentungulina Berlese, 1897).

Definition: Body of medium size (length: 360 to 570 μ in the female) generally shortly ovoidal. Cuticle mostly bare except the propodosoma which bears a punctate shield; in the genus Amhyadesia the hysteronotum bears in addition a large punctate shield. In all the species the hysteronotum presents a system of narrow grooves connected with a main canal originating from the orifices of the oil glands. Sejugal furrow present. Genital suckers absent. Male without adanal suckers but with a large apicoventral sucker on legs I, III, IV. Vulva in an inverted V, rarely in an inverted Y with a very short longitudinal branch. Epignium absent. Claparede organ absent in the larva. Grandjean’s organ simple, cylindro-conical. Legs relatively short. Tarsi I-II ending in a strong spine and in a narrow and rather long flexible pretarsus bearing a claw. Tarsi III-IV ending in a shorter and thicker pretarsus bearing a claw.

Amhyadesia (type species: Hyadesia gynni Manson) and a new species A. californica, from Leo Carillo, on the Southern Californian coast. The mites (females and males) were found on rocks among green algae, in tide pools just below high tide level.

FAIN (1979) redescribed Hyadesia vietsi Womersley, 1961 from the typical material, he described a new subspecies Hyadesia fusca tenuipilis from Finland and recorded a new locality for H. fusca (Ostende in Belgium). These specimens from Belgium were found on stones among green algae in the intertidal zone.

2. Family Algophagidae Fain, 1974 nov. tax. (= Algophaginae Fain, 1974).

Definition: Body as in Hyadesiidae, but slightly larger (525 to 800 μ in length in the female). Presence between the legs I and II of a sclerotized finely punctate and surelevated band resembling an air-chamber. Dorsum without a sejugal furrow; propodonotum bearing a shield; hysteronotum with or without a punctate shield and always devoid of a
system of oil grooves. Genital suckers present or absent. An epigynium is present in the female. Vulva in an inverted V or Y. Eyes present or not. Male without adanal or tarsal suckers. Legs long and relatively narrow. Tarsi I-IV without a strong apical spine but bearing an apical short and thick not flexible pretarsus ending in a claw. Idiosomal setae without an apical hook (except in *Neo-hyadesia* whose I 5 have an hook-like apex).

**Type genus:** *Algophagus* Hugues, 1955.

**Biology:** These mites live in fresh to brackish water or on litter, moss and phanerogams either wet or dry. They are cosmopolitan.

These two families form together the superfamily *Hyadesioidea* nov. superfam.

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**KEY TO THE HYADESIODEA**

1. Tarsi I-II with a strong apical spine and bearing a long and narrow flexible pretarsus ending in a claw. Absence of a sclerotized band between legs I and II (7 air-chambers). Sejugal furrow present. Hysteronotum with a system of oil-grooves originating on the orifices of the oil-glands. Male with an apicoventral sucker on tarsi I-III-IV. Female without epigynium.
   - *Hyadesiidae* Halbert, 1915
   Tarsi I-II without a large apical spine and with a short, thick and not flexible pretarsus ending in a claw. Presence of "air-chambers" between legs I and II. Dorsum lacking a sejugal furrow and a system of oil-glands. Male without tarsal suckers. Female with an epigynium.
   - *Algophagidae* Fain, 1974

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**KEY TO THE HYADESIIDAE**

(N.B. 1. Length of claws = measured in straight line and including the base inserted in the pretarsus.
2. Length of tarsus = not including the pretarsus and the apical spines.
3. We have not seen the types of *H. algivorans* (Michael) and of *H. uncinifer* Megnin and these species are not mentioned in this key.
4. We have seen the type of *H. chelopus* (Trouessart). This specimen is crushed and incomplete and is not identifiable.
5. The males of *H. kerguelenensis* (Lohmann), *H. paulensis* Fain, *H. subantarctic* Fain, *H. vietsi* Womersley and *H. curassaviensis* Viets are unknown.)

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**Females.**

1. Hysteronotum and the posterolateral parts of opisthogastr covered by a sclerotized puncate and pitted shield. 
   - Genus *Amhyadesia* Fain & Ganning, 1979 (2)
   - *Hysteronotum and opisthogastr soft, without sclerotized shields.
   - Genus *Hyadesia* Megnin, 1891 (syn.: *Lentungula*, Michael, 1893) (3)

2. Hysteronotal shield covering nearly completely the hysteronotum and bearing large pits. Setae $d_1$ to $d_4$ forming thick and short spines (20 to 32 μ long).
   - *A. californica* Fain & Ganning, 1979
   - *A. glynni* (Manson, 1963)

   - Subgenus *Hyadesiella* Fain, 1974 (One: species: *H. kerguelenensis* (Lohmann, 1907))
   - *Claws III-IV not toothed. Other characters variable. Subgenus *Hyadesia* Megnin, 1891 (4)

4. Propodonotal shield distinctly longer than wide.
   - 5
   - Propodonotal shield distinctly wider than long.
   - 7
5. With 3 pairs of genital and 1 pair of anal setae. Idiosoma 360 μ long, 190 μ wide. Propodosomal shield 85 μ long, 50 μ wide. Tarsi III-IV slightly longer (25-26 μ) than tarsi I-II (21 μ). Claws I-IV very short (7-7.18 and 20 μ respectively). Seta s cx 18 μ. Setae sc i, d 1 to d 5 and l 1 to l 4 10 to 55 μ long. Ventral setae of tibiae III-IV are short and very thin spines.

H. paulensis Fain, 1975

With 2 pairs of genital and 1 or 2 pairs of anal setae. Idiosoma 405-570 μ long. Tarsi III-IV distinctly longer than tarsi I-II. Claws I-IV longer (claws I-II at least 12 μ, claws III-IV 33 to 60 μ long). Other characters variable. 6

6. Large species (idiosoma 570 × 420 μ). Tarsi III-IV twice or more than twice as long (63-70 μ) as tarsi I-II (30 μ). Claws III-IV 4 to 5 times longer (60 μ) than claws I-II (12-15 μ). With one pair of anal setae (225 μ). Setae d 4 45 μ, spinous. Ventral setae of tibiae III-IV thin and flexible.

H. travel Fain, 1975

Smaller species (idiosoma 405 to 460 μ long). Tarsi III-IV slightly longer (39-42 μ) than tarsi I-II (30 μ). Claws III-IV about 2 1/2 times longer (33 μ) than claws I-II (13 μ). With 2 pairs of anal setae. Setae d 4 170 μ, with a hook-like apex. Ventral setae of tibiae III-IV forming short spines.

H. subantarctica Fain, 1974

7. Setae sc i thin, 9-18 μ long. Idiosoma about 360 μ long. Claws III-IV 10-18 μ long. With 2 pairs of genital and 1 pair of short anal setae (9 μ). Ventral setae of tibiae III-IV finely spinous. Seta d 5 absent or vestigial. 8

Setae sc i 50-100 μ long. Idiosoma at least 500 μ long. Claws III-IV 24 to 39 μ long. With 1 to 3 pairs of genital setae and 2 or 3 pairs of anal setae. Setae d 5 30 to 60 μ long. Setae of tibiae III-IV variable.

8. Tarsi III-IV longer (35 and 33 μ) than tarsi I-II (27 and 25 μ). Claws III-IV twice as long (18 μ) as claws I-II (9 μ). Setae s cx 70-80 μ long.

H. curassaviensis Viets, 1936

Tarsi III-IV shorter (12 μ) than tarsi I-II (16 μ). Claws III-IV slightly longer (10 μ) than claws I-II (7 μ). Setae s cx 12-25 μ long.

H. tumida Benard, 1961


Claws I-II 9 to 12 μ long; claws III-IV 24 to 27 μ long. Ventral seta of tibiae III-IV thick and stiff.

H. fusca (Lohmann, 1894) (= H. furcillipes Benard, 1961)

11. With one pair of genital and 2 pairs of anal setae. Setae sc i 100 μ; d 2 and d 3 135 μ; setae d 5 35 μ; l 3 60 μ... H. halophila Fain, 1974

With 2 pairs of genital setae. Seta s cx 75 μ long. Setae d 2 and d 3 70-75 μ long; d 4 135 μ; d 5 60 μ; l 3 36 μ.

H. sellai Viets, 1937

With 2 pairs of genital and 3 pairs of anal setae. Setae sc i 72-80 μ; d 2 and d 3 72-108 μ; l 2 30-45 μ; l 5 135 μ.

H. vietsi Womersley, 1961

Seta s cx absent. Setae sc e, sc i, d 2 and d 3 piliform, flexible. Seta e 3 30 μ; d 1 13 μ; d 2 and d 3 90-110 μ; d 4 205 μ; l 4 48 μ. Long dorsal seta of tarsi I-IV distinctly shorter than the tarsus and tibia together and without apical hook. Solenidion phi of tibiae I-III as long as tarsus, tibia and genu together. Solenidion phi of leg IV is much longer than this tibia.

H. vietsi Womersley, 1961

Seta s cx absent. Setae sc e, sc i, d 2 and d 3 piliform, flexible. Seta e 3 30 μ; d 1 13 μ; d 2 and d 3 90-110 μ; d 4 205 μ; l 4 48 μ. Long dorsal seta of tarsi I-IV distinctly shorter than the tarsus and tibia together and with an apical hook. Solenidion phi of tibiae I-III much shorter; the phi of tibia IV is much shorter than this tibia. H. nearctica Fain & Ganning, 1978
Males.

1. Hysteronotum and a part of opisthogastracered by a sclerotized punctate and pitted shield. 
   Genus Amhyadesia Fain & Ganning, 1979 (2)
   Hysteronotum and opisthogastrasoft without sclerotized shields. 
   Genus Hyadesia Megn., 1891 (3)

2. Hysteronotal shield covering nearly completely the hysteronotum and bearing large pits. 
   Setae d 1 to d 4 forming thick and short spines (29 to 36 μ long). Tarsi I-IV 32 to 33 μ long. 
   Claws I-II 18 μ; claws III-IV 39 μ long. 
   A. californica Fain & Ganning, 1979
   Hysteronotal shield covering only a part of hysteronotum and with small pits. Setae d 1 
   to d 4 thick and 30 μ-60 μ-69 μ and 51 μ long respectively. Tarsi I-II 21 μ, tarsi III-IV 18 μ long. 
   Claws I-II 9 μ; claws III-IV 18 μ long. 
   A. glynni (Manson, 1963)

3. Tarsi I-IV very short, the tarsi III-IV shorter (9 μ) than tarsi I-II (12-15 μ). Claws III-IV 
   9 μ long. . . . H. tumida Benard, 1961
   Minimum length of tarsi I 18 μ; of tarsi II 29 μ; of tarsi III-IV 27 μ. Claws III-IV 27 to 
   60 μ long. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . ...
KEY TO THE ALGOPHAGIDAE

(N.B. The male of Algophagopsis pneumatica is unknown).

Males and females.

   In both sexes the dorsum is devoid of a shield and of lens-like eyes...................... 2

2. Genital suckers and setae cx II present. In the male the epimerae II are fused with the sternum. . . . Genus Algophagus Hughes, 1955 (3)
   Genital suckers and setae cx II absent. In the male the epimerae II are free.................... Genus Neohyadesia Hughes & Goodman, 1969 (One species: N. signyi Hughes & Goodman, 1969)

3. Chitinous bands (? air chambers) between the legs I-II extending to the ventral surface of body. Dorsum without sclerotized platelets...
   A. antareticus Hughes, 1955
   Chitinous bands between legs I-II short, only visible dorsally. Dorsum with 15 small punctate platelets... A. semicollaris Fain, 1974

REMARKS ABOUT SOME INSUFFICIENTLY KNOWN SPECIES

Through the courtesy of Dr. G. RACK we could examine the typical material of the two species described by VIETS (Hyadesia curassaviensis and H. sellai) and whose types are conserved in the Zoologische Museum, Universität Hamburg.

1. Hyadesia curassaviensis Viets, 1936

The typical slide contains 3 females among which one is in a good condition. As VIETS did not mention a holotype we designate here this specimen as the Lectotype.

Lectotype female (fig. 1-6) : Length of idiosoma 360 µ, maximum width 220 µ. Dorsum : Propodonotal shield 21 µ long and 50 µ wide. A system of oil-grooves are present on the hysteronotum. Venter : There are 2 pairs of genital setae and only one pair of short (9 µ) anal setae. Legs : Tarsi I-IV 27 µ, 25 µ, 35 µ and 33 µ long respectively (apical spine and pretarsus with terminal claw not included). Claws I-II and 9 µ long ; claws III-IV 18 µ long. Gnathosoma 69 µ long, 54 µ wide (palps included).

2. Genital suckers and setae cx II present. In the male the epimerae II are fused with the sternum. . . . Genus Algophagus Hughes, 1955 (3)
   Genital suckers and setae cx II absent. In the male the epimerae II are free.................... Genus Neohyadesia Hughes & Goodman, 1969 (One species: N. signyi Hughes & Goodman, 1969)

3. Chitinous bands (? air chambers) between the legs I-II extending to the ventral surface of body. Dorsum without sclerotized platelets...
   A. antareticus Hughes, 1955
   Chitinous bands between legs I-II short, only visible dorsally. Dorsum with 15 small punctate platelets... A. semicollaris Fain, 1974

Locality

The mites were collected at Rifwal, near Willemstad, Curaçao, 1 August 1932, from a collection of sea water communicating intermittently with the sea. The typical slide is labelled as follows : "Hyadesia curassaviensis Viets, Type, Nied. Guayana, Curaçao, Rifwall, 1.VIII.1932, n° 4804. Coll. K. VIETS. Eing. nr. A2, 1960 ". This slide contains the lectotype female and 2 paralectotypes females.

The mites were mounted in gelatin-glycerine. We have remount them in Hoyer.
2. *Hyadesia sellai* Viets, 1937

As VIETS did not describe a holotype we designate a Lectotype female in his material. The mites were mounted in gelatin-glycerin. We have remounted them in Hoyer.

*Lectotype female* (fig. 7-12) : Idiosoma 503 μ long, 320 μ wide. *Dorsum* : Propodonotal shield 45 μ long and 100 μ wide. Hysteronotum with the usual system of oil-grooves. *Venter* : There are 1 pair of genital setae and 2 pairs of anal setae, the a1 24 μ, the a3 30 μ. *Legs* : Tarsi I-IV 37 μ, 30 μ, 52 μ, 56 μ long respectively (apical spines or pre-
tarsi not included). Claws I-II 9 \( \mu \) long; claws III-IV 27 \( \mu \) long. Gnathosoma 110 \( \mu \) long and 82 \( \mu \) maximum width (palpi included).

**Male** (fig. 13-18): Idiosoma 426 \( \mu \) long and 273 \( \mu \) wide. **Dorsum**: Propodonotal shield 40 \( \mu \) long and 90 \( \mu \) wide. Hysteronotum as in the female. **Venter**: There are 1 pair of genital setae and 2 pairs of anal setae (20 \( \mu \) and 50 \( \mu \)). **Legs**: Tarsi I-IV 24 \( \mu \), 29 \( \mu \), 50 \( \mu \), 53 \( \mu \) long. Claws I-IV 9 \( \mu \), 10 \( \mu \), 27 \( \mu \), 27 \( \mu \). Gnathosoma 102 \( \mu \) long, 66 \( \mu \) wide.

**Chaetotaxy**: Seta sc i 90 \( \mu \); d 1 20 \( \mu \); d 2 and d 3 130 \( \mu \); d 4 200 \( \mu \); d 5 40 \( \mu \); l 1 to l 4 39 to 55 \( \mu \); l 5 195 \( \mu \). Seta s cx thick, barbed 30 \( \mu \) long. Ventral setae of tibiae I-II are thick spines (that of tibia II is 8 \( \mu \) thick), those of tibiae III-IV are short (12 \( \mu \)) and much thinner spines.

**Host and locality**

The mites were found in Rovigno, Istria, Italia and in Split, Dalmatia, Yougoslavia, both localities situated along the Eastern coast of the Adriatic Sea. The mites were collected from stones in the intertidal zone, among algae (Lectotype and 2 female paralectotypes, 2 male paralectotypes, 2 nymphs).

3. *Hyadesia algivorans* (Michael, 1893)

*Lentungula algivorans* Michael, 1893: 262

We have not seen specimens of that species. The types are not in the British Museum and they are probably lost.

According to the original description it is a small species. The idiosoma of the female is about twice as long (380 \( \mu \)) as wide (200 \( \mu \)). There is a very large semicircular epigynium in front of the vulva. The dorsal setae are rather thick and stiff. The se i and d 1 setae are subequal. The male genital organ is very anterior and close to the epimerae II, the epimerae II are fused with the sternum and the tarsi III and IV are distinctly longer than the anterior tarsi. This combination of characters does not correspond to any other described species.

The types of that species were found: "in a patch of green alga (*Cladophora fracta*), growing where the fresh water of a small stream trickled..."
Fig. 7-8: *Hyadesia sellai* Viets. Female. — 7) Dorsally; 8) Ventrally (after lectotype and paralectotypes).
Fig. 9-16: *Hyadesia sellai* Viets. — 9-12 Female: 9) Tarsus, tibia and genu of leg I; 10-12) Tarsus and tibia of legs II-III-IV. — Fig. 13-16 Male: 13) Tarsus, tibia and genu of leg I; 14-16) Tarsus and tibia of legs II-III-IV (after lectotype and paralectotypes).
over the face of the granite cliffs within reach of the spray of the sea, near the Land's End, Cornwall.

I have not found it elsewhere.” (MICHAEL, 1901, p. 200).

4. *Hyadesia fusca* (Lohmann, 1894)
*Lentungula fusca* Lohmann, 1894 : 85
*Hyadesia furcillipes* Benard, 1961 : 81 syn. nov.

The types of that species are not in the following Institutions where we asked for: Zoologisches Museum of Universität Hamburg; Zoologisches Museum of Universität Kiel; Zoologisches Museum der Humboldt Universität Berlin; Collections of Dr. VIETS, Wilhemshaven. These types are probably lost. We have compared specimens of both sexes of *H. fusca* collected by VIETS in Helgoland,
the typical locality, with typical specimens, male and female, of *Hyadesia furcillipes*, kindly sent to us by Dr. BENARD. We could not find any significant difference between these two species and we may conclude that they are synonymous.

We give here the main characters of that species:

**Female**: Propodosomal shield about twice as wide as long. Hysteronotum without shield but bearing a system of oil-grooves. Tarsi I-II 34 to 39 μm long, tarsus III 54 to 60 μm; tarsus IV 64 to 70 μm. Claws I-II 21 to 24 μm; claws III-IV 34-39 μm. There are 2 pairs of genital and 3 pairs of anal setae, the latter are 30 μm, 30 μm and 120-150 μm long. Supracoaxal seta 70-80 μm long, thin and barbed in its apical half. Seta sc I 50-60 μm; d1 25-30 μm; d2 and d3 60-75 μm; d4 120-140 μm; d5 50 μm; l1 to l4 30 to 40 μm; l5 210-240 μm. The ventral setae of tibiae III-IV are thin and flexible.

**Male**: dorsum as in the female. Tarsus I 33 μm; tarsus II 35-39 μm; tarsi III-IV 27 μm. Claws I-II 22 to 24 μm; claws III-IV 36 to 39 μm. Seta sex 75 μm. There are 2 pairs of genital s etae and 2 pairs of anal setae (the latter are 25 and 120 μm long). Ventral setae of tibiae III-IV thick and progressively attenuated apically.

Geographical distribution

*Hyadesia fusc a* has been recorded from various localities in Europe. From Germany: Helgoland Is. (North Sea), Rügen and Kiel (Baltic Sea) LÖHMANN, 1894. From Normandy-Cotentin (Channel) France, under the name *Hyadesia furcillipes* (BENARD, 1961). From Scheveningen, Holland (OUDEMANS, 1927). From the Swedish east and west coast (GANNING, 1970). From Oostende, Belgium, North Sea and from Finland (FAIN, 1979).

5. **Hyadesia tumida** Benard, 1961

This species has been described from the coast of Brittany (Roscoff, Bloscon) and Normandy-Cotentin (France).

We have found numerous specimens of that species from algae at Morgat (Brittany, Finistère), 10 July 1978. At this place we could not find any specimen of *H. fusc a*. Our specimens correspond perfectly with the types of *H. tumida* kindly sent to us by Dr. BENARD.

**List of the species of Hyadesioidae with their localities**

**Family Hyadesiidae** Halbert, 1915

**Genus Hyadesia** Megnin, 1891

3. *H. fusc a* (Lohmann, 1894) (syn. *H. furcillipes* Benard, 1961: North Sea (Heligoland Is., Germany; Sweden; Holland; Belgium); Baltic Sea (Germany and Sweden); Channel (France). *H. fusc a* tenuipliis Fain, 1979: Baltic Sea (Finland).
6. *H. sellai* Viets, 1937: Eastern coast of Adriatic Sea, at Rovigno (Italy) and Split (Yugoslavia).

**Subgenus Hyadesiella** Fain, 1974


**Genus Anhyadesia** Fain & Ganning, 1979

Family Algophagidae Fain, 1974

Genus Algophagus Hughes, 1955

   A. antarcticus laticollaris Fain, 1974 : Kerguelen Is.
2. A. semicollaris Fain, 1974 : Kerguelen Is.

Genus Neohyadesia Hughes & Goodman, 1969

   N. signyi punctulata Fain, 1974 : Kerguelen Is.

Genus Algophagopsis Fain & Johnston, 1975

1. A. pneumatica Fain & Johnston, 1975 : On submerged rocks of the Kings River, California, U.S.A.

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Errata

In the drawings n° 34 and 35 of the paper of Fain, 1974 (see bibliography) the seta a 3 should become l 4 (fig. 34) and the seta l 4 should become d 4.

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