

**HESIOSPINA SIMILIS (HESSLE) (POLYCHAETA, HESIONIDAE)
FROM GALWAY BAY, WEST COAST OF IRELAND,
WITH NOTES ON ITS TAXONOMIC STATUS AND
DISTRIBUTION**

by

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Résumé

La Polychète, *Hesiospina similis* (Hessle) (Hesionidae) n'avait jusqu'ici été décrite que des eaux japonaises. Cependant, des travaux benthiques dans la baie de Galway, sur la côte Ouest d'Irlande, ont démontré la présence de *H. similis* et même son abondance dans une station particulière. Certaines descriptions, dans la littérature européenne, d'un autre genre *Kefersteinia* Quatrefages, lui confèrent des caractères communs avec *Hesiospina*. Une nouvelle observation de certains spécimens, attribués d'abord à *Kefersteinia* démontre qu'elle s'identifie à *Hesiospina*. Nous suggérons ainsi que *H. similis* est peut-être largement répandue dans les eaux européennes. Une description de *Hesiospina* de la côte Ouest d'Irlande est jointe ainsi que des notes sur son écologie.

Introduction

As a family, the Hesionidae Sars is unusual in that several genera in Irish and British waters and monospecific, e.g., *Kefersteinia* Quatrefages, *Nereimyra* Blainville, *Ophiodromus* Sars and *Syllidia* Quatrefages. Whilst the understanding of generic and specific differences in the Hesionidae is poor relative to other families (Faulchal, 1977), the discovery of a genus new to European waters is, nevertheless, surprising.

During benthic studies in the Galway Bay area on the west coast of Ireland, *Hesiospina similis* (Hessle) was recorded from various locations. When the European literature was searched for other records of this species, the authors found that certain descriptions of a similar hesionid, *Kefersteinia cirrata* (Keferstein), included features which are characteristic of *Hesiospina*. In all, eight records which variously note such features were found.

This paper gives a description of *Hesiospina similis* from Galway Bay and comments on the features which separate it from *K. cirrata*. Those records of hesionids re-assessed as *H. similis* by

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the authors, are reviewed and discussed. In some cases, original descriptions are added to from a re-examination of material.

The paper lists the Irish records and reviews the ecology of *H. similis* as it is presently known.

DESCRIPTION

HESIOSPINA Imajima and Hartman 1964

H. similis (Hessle, 1925)

The following description is based on several specimens collected in Kilkieran Bay, west coast of Ireland (53°20'N, 9°43'W).

Body ca.1cm in length, 24-35 setigers. Prostomium pentagonal (Fig. 1a) with 2 lateral antennae and 2 biarticulate palps; antennae longer and thinner than palps. 8 pairs of tentacular cirri with 2 pairs on each of the first 4 segments. 2 pairs of red eyes, anterior pair reniform. Proboscis reaching 10th-13th setiger, unarmed with 20-28 papillae on rim. Parapodia uni/subbiramous. Straight aciculum from first tentacular cirrus-bearing segment. Emergent falcate spines (Fig. 1b) from 11th-19th setiger in smallest specimens, to 30th in largest specimens, becoming less falcate in posterior setigers. Neurosetae of 2 types: 1) long shafted heterogomphs with terminal article dentate at base and uni- or bidentate at tip (Fig. 1c). Such setae may also have prolongation at their tips similar to that drawn by Fauvel (1923) for *Leocrates claparedii* (Costa). (Such setae have each been observed by the first author in other hesionid genera and are therefore not diagnostic for *Hesiospina*). 2) Simple acicular setae (Fig. 1d).

Dorsal cirri long and monilliform, ventral cirri short and smooth. 2 urites. Body creamy white in colour.

Remarks

The features which separate *H. similis* from *K. cirrata* are:

- 1) the arrangement of the tentacular cirri, i.e., 2 pairs on the first 4 segments in *Hesiospina* and 3 pairs on the first and second segments and 2 on the third in *Kefersteinia*;
- 2) the presence of emergent falcate spines in mid-body segments;
- 3) bifid neurosetae;
- 4) a single, simple acicular seta in each neuropodium.

Historical review

Table 1 lists those records of *K. cirrata* known to the authors which include at least the characteristic falcate spines of *Hesiospina*. (To complete the list, the records of *H. similis* and its syno-

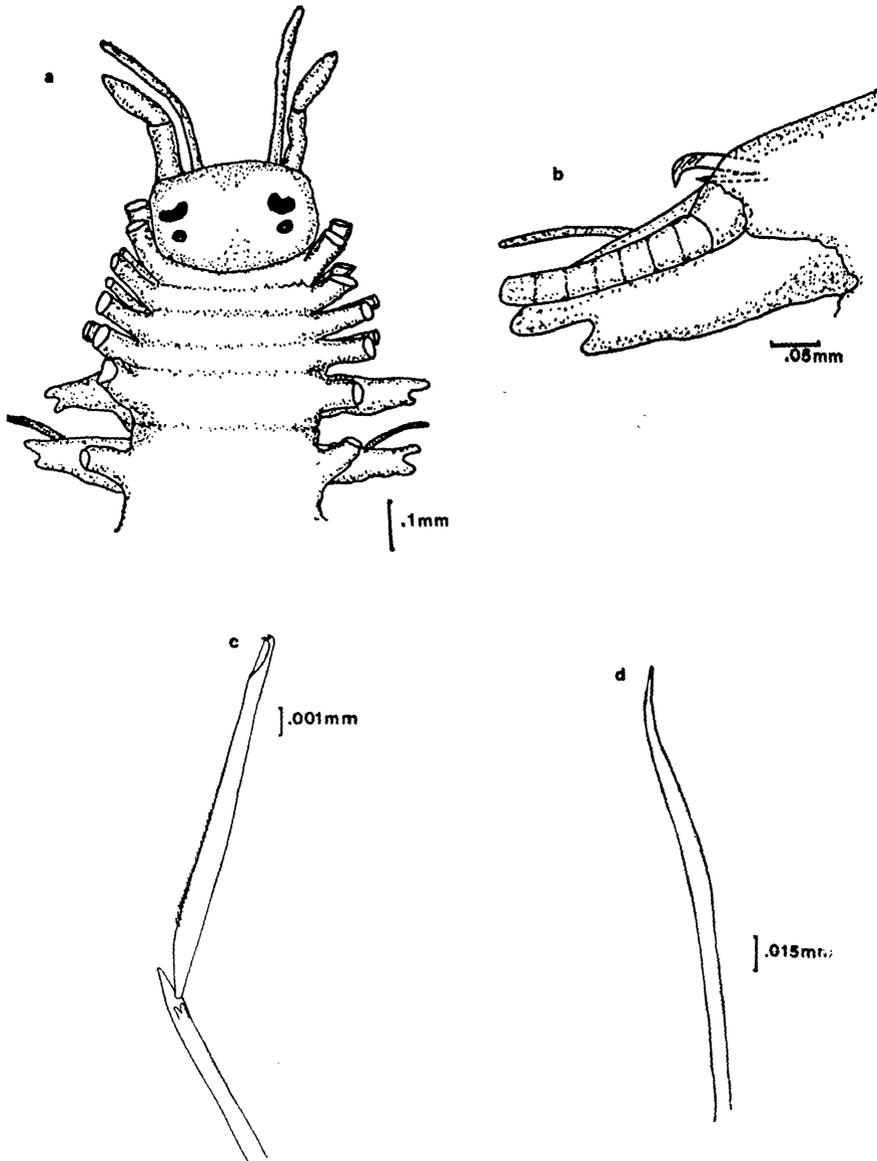


FIG. 1
Hesiospina similis

a: anterior end showing arrangement of tentacular cirri; b: dorsal view of parapodium showing falcate spine; c: heterogomph seta; d: acicular seta.

nym are also included) (1). Where possible, material has been re-examined and features not mentioned in the literature are included and are marked with an asterisk (Table 1). When referring specimens to *Kefersteinia cirrata* (= *Castalia fusca* var. Southern, 1914),

(1) McIntosh's (1921) note is not included as it merely quotes from Southern (1914).

TABLE 1

Records of *K. cirrata* referred to *H. similis* by the authors and of *H. similis* or its synonym with information on important taxonomic features.

| Author(s) | Taxon | Body length | Antennae/ palps. | Tentacular cirri | Proboscis | Setae | Falcate spines | Location |
|--------------------------------|---------------------------------|--|---------------------|-----------------------|------------------------------|--|---|---|
| Saint-Joseph (1888) | <i>Kefersteinia cirrata</i> | 1cm 36-40 segs | 1 pair of each | 8 pairs 2;2;2;2. | Unarmed 60 papillae | Composite Unidentate with dentate base to terminal article | Segments 11-26 | Intertidal Dinard, France |
| Fauvel (1913) | <i>K. cirrata</i> | | | | | | Present | Monaco |
| Southern (1914) | <i>Castalia fusca</i> var. | * Incomplete - 8mm 29 segs - 9mm 33 segs | 1 pair of each | * 8 pairs 2;2;2;2. | * Unarmed 22 papillae | Bidentate composite with dentate base * Acicular seta present | Segments 11-21 (29 segs) 11-28 (33 segs) | Ballynakill, Co. Galway, 2-3m. Maeri, shell-gravel |
| Fauvel (1923) | <i>K. cirrata</i> (footnote) | | | | | | Maybe only found in juveniles | |
| Hessle (1925) | <i>K. similis</i> | Incomplete 1.2cm 34 segs | 1 pair of each | 8 pairs 2;2;2. | Unarmed 50 papillae | Uni/bidentate Composite, with dentate base | Segments 16-26 | Sagami, Misaki Japan. 450m |
| Fage and Legendre (1927) | <i>K. cirrata</i> | | | | | Bidentate composite | Present | Concarneau, Brittany, Banyuls, Mediterranean |
| Gravier and Dantan (1928) | <i>K. cirrata</i> | | | | | Bidentate composite | Present | Bay of Algeria Mediterranean |
| Fauvel (1937) | <i>K. cirrata</i> | | | | | | Present | Alexandria, Egypt, Mediterranean |
| Imajima and Hartman (1964) | <i>Hesiospina similis</i> | 1cm 41 segs | 1 pair of each | 8 pairs 2;2;2;2. | Unarmed 21-27 papillae | Bidentate composite with dentate base Acicular seta | Present in anterior segments only * 11-24 | Shiriyazaki, Japan c.150m |
| Harmelin (1969) | <i>K. cirrata</i> | | 1 pair of each | * pairs 2;2;2;2. | * 24 papillae | * Bidentate composite with dentate base Acicular seta | 10th-11th- incomplete | Ile Standia, Crete, Mediterranean 12-15m. <i>Halophila</i> meadows |

most authors do not describe the arrangement of prostomial appendages or tentacular cirri. Furthermore, other anatomical details, e.g., number of segments, body length, number of eyes, structure and length of the proboscis, shape of parapodium and cirri, tend to be omitted.

Saint Joseph (1888), the first to record emergent falcate spines, gives a detailed description of specimens referred by him to *Kefersteinia*, while Southern (1914), with a more complete general description, includes details of setal structure. Southern (1914) names his specimens as a variety of *Castalia fusca* (= *K. cirrata*) but states that "if its features are constant, (it) will require a new name". Fauvel (1913, 1923, 1937) only refers to the presence of falcate spines and suggests that they could be post-larval structures which are subsequently lost. Hessle (1925), working primarily on the taxonomic relationship between hesionids, syllids and pilargids, describes *Kefersteinia similis* from Japanese waters, and gives details of appendages and setal morphology. He remarks that it is close to the *K. cirrata* described by Saint Joseph (1888) and is more than likely the same as that recorded by Southern (1914).

Workers on planktonic polychaetes (Fage and Legendre, 1927; Gravier and Dantan, 1928) record specimens of *K. cirrata* having falcate spines. An account of setal structure is included by the latter authors.

In 1964, Imajima and Hartman erected the genus *Hesiospina* for hesionids having paired antennae and palps, 8 pairs of tentacular cirri, with 2 pairs on each of the first 4 segments, emergent falcate spines in the notopodium of mid-body segments, composite neurosetae with bidentate tips and a single simple neuropodium acicular seta per.

The most recent record of falcate spines is that of Harmelin (1969) for specimens identified as *K. cirrata*.

Remarks

From Table 1, it is evident that several workers overlooked features such as the arrangement of tentacular cirri and setal morphology which were at variance with the genus *Kefersteinia* as was then constituted.

Certain features show variations from author to author, e.g., number of proboscidal papillae, the dentition of neurosetae and the number of segments with falcate spines. The last feature may be related to the length of the animal as smaller specimens have fewer spine-bearing segments than larger specimens. With regard to the dentition of neurosetae, these may have been overlooked by earlier workers as they are only evident at a magnification of X400. The more numerous proboscidal papillae (Table 1) noted by Saint Joseph and Hessle, however, cannot be explained.

To substantiate Fauvel's (1923, 1937) suggestion that the falcate spines recorded by himself and other workers could be post-larval characters of *Kefersteinia cirrata* which are later lost, small specimens of this species (0.51mm) were examined. No such structures were found.

During the examination of Japanese, Mediterranean and Irish material, slight differences in the setae were noticed. Due however to the small number of Japanese and Mediterranean specimens examined, the authors are not willing to confer specific status based on such differences. The variations showed Mediterranean material to have stronger, clearer dentition on the shaft of the terminal portion. This dentition is least obvious in Japanese specimens. The tip of the acicular setae varied from rounded in Mediterranean specimens, through taperer in Japanese material to finely pointed in *H. similis* from Ireland.

Ecology

Few authors give ecological information of any kind for *H. similis*. For example, neither Hessle (1925) nor Imajima and Hartman (1964) give substrate information in the Japanese records. From the information to hand, *Hesiospina* has a depth range of 0-450m and occurs in living and dead maerl, which may have an admixture of shell gravel, and in silty sand colonized by the phanerogam, *Halophila stipulacea*. Specimens have been collected in the plankton in May and between July and August (Fage and Legendre 1927; Gravier and Dantan 1928). A gravid female (oocyte diameter 120 μ) was recorded in August 1975 from Galway Bay.

Irish records

H. similis occurs commonly in mixed maerl deposits at Kilkieran Bay (53°18.5'N, 9°41.5'W; 15m), west coast of Ireland. Single records of *H. similis* are from similar substrates in Galway Bay (53°07.5'N, 9°33'W; 19m; 53°14.N, 9°01.5'W; 6m).

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Summary

Descriptions of the hesionid polychaete, *Hesiospina similis* (Hessle) only relate to Japanese waters. However, benthic work in Galway Bay on the west coast of Ireland, has shown that *H. similis* occurs in the area and is common at one particular locality. Certain descriptions of another hesionid genus, *Kefersteinia* Quatrefages, in the European literature note features which are diagnostic for *Hesiospina*. Re-examination of some material ascribed to *Kefersteinia* has shown it to be consistent with *Hesiospina*. It is suggested that *H. similis* may be widespread in European waters. A description of *Hesiospina* from the west coast of Ireland is included with notes on its ecology.

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