SACCOCOMA VERNIOYI N.SP., A NEW SACCOCOMID FROM THE UPPER JURASSIC OF THE CENTRAL ITALY

A new species of Saccocoma AGASSIZ, Saccocoma vernioryi n.sp., is described from Tithonian sediments of the Central Apennines (Italy).

Introduction

A new species of saccocomid (Saccocoma vernioryi n.sp.) comes from Tithonian strata, outcropping along the road from Pianello to Piccia (sheet N. 116 Gubbio of the 1:100,000 geological map of Italy). This outcrop is already known in the geological literature (CENTAMORE et alii, 1971; FARINACCI et alii, 1981; MANNI & NICOSIA, 1984). The new species was found in some levels of sand sized disarticulated skeletal remains of saccocomids. The "Saccocoma level" is widespread into the Tethys (NICOSIA & PARISI, 1979) and it is marker horizon of Tithonian age; it is usually almost entirely constituted by remains of Saccocoma tenellum (GOLDFUSS). In the type outcrop, the "Saccocoma level" shows some intercalate strata that are alternatively made of S. tenellum and S. vernioryi. In the other outcrops, from which the new species comes, it is scattered into a mass of S. tenellum remains.

Systematics

The new species, showing differences in many plates in respect to the other species of Saccocoma, needs the separate description of the single pieces: remarks about each plate follow and conclusively some general observations are made.

Subclassis ARTICULATA ZITTEL, 1879
Ordro ROYEECARINA SILVERT-DORICK, 1952
Familia SACCOCOMIDAE d'ORBIGNY, 1852
Subfamilia SACCOCOMINAE d'ORBIGNY, 1852
Genus Saccocoma AGASSIZ, 1836
(type species: Saccocoma tenellum (GOLDFUSS))

Saccocoma vernioryi n.sp.

1972 Saccocoma sp. indet. HESS, p. 639, tav. 2, fig. 24a, b, c
1972 Saccocomid, non-identifiable element HESS, p. 639, tav. 2, fig. 26a, b
1979 Saccocoma cf. quinestri PISSA & DŽIK, p. 812, fig. 4a, c, d, e
1979 Saccocoma sp. PISSA & DŽIK, p. 812, fig. 4b

Descriptions

Radial (Fig. 1): the radials, arrow-shaped, are arcurated and oblong. The dorsal surface is convex;

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it is covered with a complicate reticulate sculpture and it has a very distinct medial and longitudinal ridge culminating in a bulbous articulation (Fig. 1). This bulb presents 4 spines all probably branched: in fact we have specimens either with branched superior spines or with branched inferior spines. The articular surface of bulb is very wide. The edges of radials are denticulated. The ventral surface is concave and smooth (Fig. 2).

Remarks: the radials of Saccocoma vernioryi differ from the radials of Saccocoma tenellum (Goldfuss) essentially for the presence of spines near to the bulb. They differ probably also from those of Saccocoma quenstedti Verniory, the other known species with spines on the RR, for the different shape of the same spines and for the different sculpture (using for comparison the unique figuration published by Verniory, 1961). Piserà & Dzik (1979, p. 812, fig. 4a) figured one radial of Saccocoma cf. quenstedti, but it differs from the radial of Saccocoma quenstedti figured by Verniory, for the different shape of the spines and for age (Saccocoma cf. quenstedti-s. Piserà & Dzik, 1979 - is Tithonian but S. quenstedti seems restricted to the Kimmeridgan). The radial figured by Piserà & Dzik (1979) is probably a radial of S. vernioryi.

The specimen of the fig. 4b (described as radial of Saccocoma sp.) is probably a radial of Saccocoma vernioryi, but with broken inferior spines.

I Br. (Fig. 3): the IBrBr are little, cylindrical and they have not lateral wings. The proximal articulation lies on the proximal bulb. The distal bulb is blunted on the dorsal side, therefore the articular surface is wide, smooth, convex and it shows a little central articular pit. The ventral side shows two distinct grooves, distally diverging; the grooves are divided by a deep cavity (Fig. 4).
Remarks: it is very difficult to recognize morphologically and dimensionally the BBr of *S. verniori* from those of *S. venellum* because they seem alike. On the contrary, the BBr of *Saccocoma verniori* seem to differ from those of *Saccocoma queinstedti* for the absence of the vacuolar ornamentation. The illustration of this plate (represented upside-down) is in Verniori, 1961 (p. 318, fig. 7a, b, c).

**BBr (LAx) (Fig. 5):** The articular body is squat and cylindrical. The distal bulb is divided into two secondary bulbs. The proximal bulb, in the ventral side, is blunted and therefore it forms a concave surface with a central articular pit. Each IAx (BBr) has four lateral expansions (wings), whose two are principal and two secondary. Those secondary are transversal to the principal ones. The wings can give to the plate a triangular morphology tapered in the lower part. In the ventral side, between the wings, there is a central adoral groove, laterally edged by lips. (Fig. 6).

**Remarks:** the BBr of *S. verniori* differ from those of all the other saccocoanids for the presence of two secondary wings, transversal to the principal wings.

**IIBrBr** (Fig. 7): The IIBrBr., are short with a large ventral expansion. The distal articular bulb is blunted dorsally; its articular surface is smooth, little convex and with a central pit. The proximal bulb, not blunted, has an articular surface (Fig. 8).

**Remarks:** the IIBrBr., of the other species of *Saccocoma* are never described up to day. Only Pineda & Dzik (1979, pag. 812, fig. 4e) figured a proximal brachial of this kind of *S. cl. queinstedti*; but the specimen figured shows the proximal articular bulb blunted ventrally.

**IIBrBr**, (Fig. 9): The IIBrBr., have a cylindrical body. The proximal bulb, in the ventral side, is blunted. The articular surface, so formed, is
smooth, little concave and with a central pit. The distal bulb is not blunted and its articular surface is horizontal. Laterally to body there are four wings. These wings are attached to the base of the body. The sub vertical wings are the principal while the two transversal are the secondary. The principal wings are concave dorsally; the secondary are concave ventrally. The ventral side has large adoral expansions (Fig. 10).

Remarks: the HBrBr of our species differ from ones of S. tenellum and S. quenstedti essentially for the presence of the secondary wings. Pisera & Dzik (1979, pag. 812, fig. 4d) figured a proximal brachial of S. cf. quenstedti; this specimen is very similar to ours but with broken principal wings. Hess (1972, pag. 639, fig. 26a, b, plate 2) figured as “non identifiable element of saucocomics” a HBrBr of S. vernioryi but with broken secondary wings.

HBrBr.5 (Fig. 11): these plates have a cylindrical body with a distal and proximal articular bulb. The lateral wings are attached along the body. Also in these plates the sub vertical wings are the principal while the transversal are the secondary; both are concave: the principal dorsally, the secondary ventrally. The ventral side has adoral expansions (Fig. 12).

Remarks: also the HBrBr.5 differ from the same plates of the other species of Saccocoma essentially for the presence of the transversal wings. Pisera & Dzik (1979, pag. 812, fig. 4c) figured “a proximal brachial” of S. cf. quenstedti; this plate seems to be the ours but with broken principal wings. Hess (1972, pag. 639, fig. 24a, b, c, plate 2) figured a brachial of “Saccocoma sp. indet.”. It seems a broken HBrBr.5 of S. vernioryi, represented upside-down.

Distal HBrBr (Fig. 13): these brachials are characterized for the absence of the lateral wings. Therefore there is only the body; this body is oblong and cylindrical. In the distal and proximal part there are the articular bulbs. The ventral side has large adoral projections (Fig. 14).

Remarks: these brachials are very similar to those of the Saccocoma tenellum. The same brachials of the other species of Saccocoma are unknown.

HAx (Fig. 15): the HAxAx are cylindrical, with distal and proximal articular bulbs. The ventral side shows the adoral projections. The characteristic of this plate is the presence, in its proximal part, of a lateral articular bulb (Fig. 16).

Remarks: also in this case, because of the close resemblance, it is not possible to recognize the HAx of S. vernioryi from those of S. tenellum (only Jäkel - 1892, taf. XXIX, fig. 1 - up to day represented a HAx of Saccocoma tenellum). The HAxAx of Saccocoma quenstedti are unknown.
**Type locality:** the road from Pianello (Pesaro) to Mt. Nerone, near Picia village, Central-East Italy.

**Type level:** Lower Tithonian - Middle Tithonian

**Material:** We have selected more than 30 RR. 250 fragments of spines of RR, 30 IBrBr, 15 AxAx (IBrBr), 350 IBrBr (only one IBrBr) and 5 II AxAx. All the pieces are practically infinite due to the lithogenetic value that the species has in the outcrop. All the material is more or less used but however it is possible a sure reconstruction of each plate.

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**Fig. 11** — IBrBr: (1) dorsal (x 68), (2) ventral view (x 61). 3 and 4 are same plate but with different observation angles (x 98).

— IBrBr: (1) norma dorsale (x 68), (2) n. ventrale (x 61). 3 e 4 rappresentano la medesima pieca ma vista da differenti angoli di osservazione (x 98).

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**Fig. 12** — Reconstruction of a IBrBr: a) dorsal, b) ventral, c) lateral view.

— Ricostruzione di una IBrBr: a) norma dorsale, b) n. ventrale, c) n. laterale.
Figs. 13 — 1) dorsal view of a distal Br (x 900), 2) dorsal (x 100) and 3) lateral views of distal HBrBr (x 80).

— 1) norma dorsale di una brachiale distale, 2) norma dorsale (x 100) e 3) n. laterale di distal HBrBr (x 80).

**Depository:** Museo di Paleontologia, Istituto di Geologia e Paleontologia, Università degli Studi “La Sapienza”, Roma.

**Syntypes:** because we have single disarticulated free pieces, it was agreed to establish syntypes for each plate.

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**Derivatio nominis:** the species is dedicated in honour of Rene Verniory, foremost specialist of saccocomids.

**Observations**

We know brachials and radials presumably ascribed to *Saccocoma vernioryi*, coming from Red Rogoznik coquina, Poland (Pisera & Dzik, 1979).

Figs. 14 — Reconstruction of a distal HBr: a) dorsal, b) ventral, c) lateral view.

— Ricostruzione di una distal HBr: a) norma dorsale, b) n. ventrale, c) n. laterale.

Figs. 15 — HAs: 1) dorsal, 2) lateral view.

— HAs: 1) norma dorsale, 2) n. laterale.

Figs. 16 — Reconstruction of a HAs: a) dorsal, b) ventral, c) lateral view.

— Ricostruzione di una HAs: a) norma dorsale, b) n. ventrale, c) n. laterale.
and from the Leg 11 of the Deep Sea Drilling Project (Hess, 1972). In the Central Apennines, besides in the type locality, some brachiopods were found in an abandoned quarry along the road of Val Facelo, South of Serra San Quirico village (sheet 117 Jesi of 1:100,000 geological map of Italy). Moreover, radials and brachiopods of S. vernioryi were found also to Mt. Catria, along the road from Chiasceno to Mt. Catania (sheet 116 Gubbio of 1:100,000 geological map of Italy). With the exception of the unclear stratigraphical position of the specimens coming from Leg 11 of D.S.D.P. (dated Late Jurassic) (Hess, 1972), all the known specimens come from Lower and Middle Tithonian strata.

In S. vernioryi the lateral wings of each Br can be of different dimensions. But this difference, that is necessary to avoid that the lateral inner expansions of the BrBr of each branch of a same arm collide, is little strong in S. vernioryi. In other species of genus Saccoma (S. tenellum and S. quenstedti) these differences are very strong.

About the functional and phylogenetic meaning of the species we refer to another work in preparation on the whole family Saccocoidae.

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RIASSUNTO

Viene descritta una nuova specie di Saccoma agassizii, Saccoma vernioryi n.sp., trovata in strati tizzizi dell'Appennino Centrale. Ciascun elemento scheletrico viene descritto e confrontato con il corrispondente elemento di Saccoma tenellum (Gouldii) e Saccoma quenstedii Vernyory.

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REFERENCES


