

A New Species and a New Subspecies of the Planthopper of the Family Issidae (Hemiptera, Fulgoroidea) from Greece

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Received June 1, 2006

Abstract—*Tshurtshurnella konstanto* sp. n. and *Zopherisca tendinosa skaloula* subsp. n. are described from Greece. *T. konstanto* differs from the all congeners in the male anal tube with the pointed and turned-up apex. *Z. tendinosa skaloula* subsp. n. differs from *Z. tendinosa tendinosa* in the presence of a transverse row of teeth on the dorsolateral phallobase lobes. *Z. tendinosa tendinosa* is distributed in Croatia, southern Bulgaria, and north-western Greece, whereas *Z. tendinosa skaloula* subsp. n. occurs in southeastern Greece including the Peloponnesus.

DOI: 10.1134/S0013873806080070

In the course of studying a material on the family Issidae from several European museums, a new species of the genus *Tshurtshurnella* Kusnetzov and a new subspecies of *Zopherisca tendinosa* (Spinola) were found. The nomenclature of morphological characters follows that by Gnezdilov (2003).

The material examined, including the type specimens of the taxa described below, is deposited in the following collections: CD, collection by Sakis Drosopoulos, Athens, Greece; WU, Wageningen University, The Netherlands; ZMAN, Universiteit van Amsterdam, Zoölogisch Museum, Netherlands; IRSNB, Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium; NMWC, National Museum of Wales, Cardiff, UK; BMNH, Natural History Museum, London, UK; ZMUM, Zoological Museum of the Moscow State University; BIZ, Institute of Zoology, Bulgarian Academy of Sciences, Sofia, Bulgaria; PAN, Zoological Institute, Polish Academy of Sciences, Warsaw, Poland; ZIN, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.

Genus *TSHURTSHURNELLA* Kusnetzov, 1927

The genus comprises 38 species distributed in Eastern Mediterranean Basin and Fore Asia, and only five out of these were known from Greece (Drosopoulos, 1990; Gnezdilov, 2003; Drosopoulos and Gnezdilov, 2004): *T. armatissima* (Linnavuori), *T. moreana* Dlabola, *T. peloponica* Dlabola, *T. pythia* Dlabola, *T. zelleri* (Kirschbaum).

The new species described is most closely related to *T. pythia*, *T. ramosa* Dlabola, and *T. campestris*

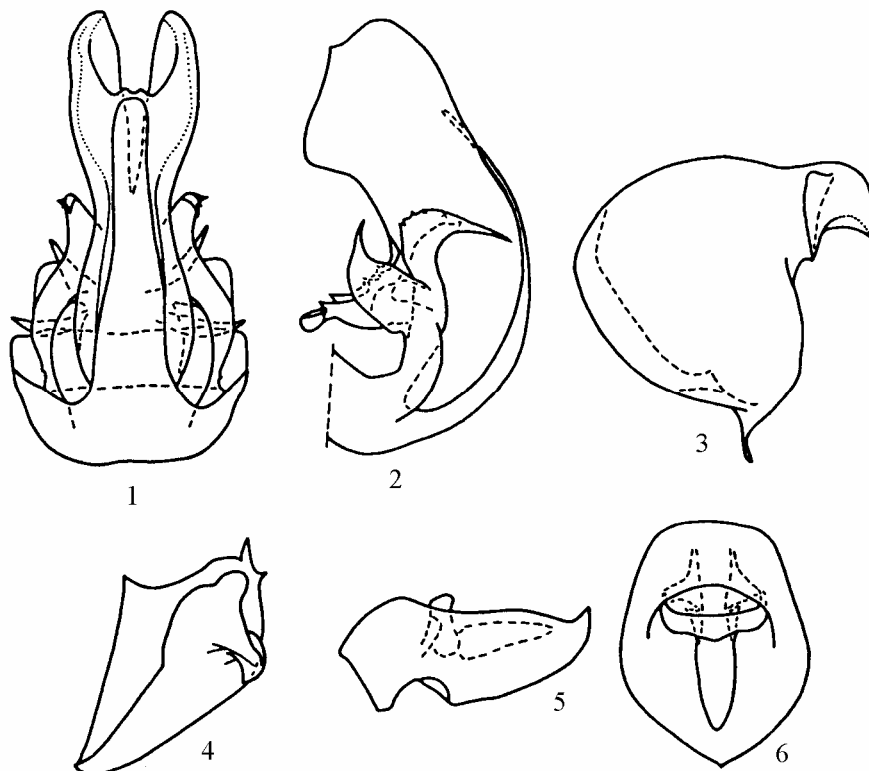
(Landberg) in the structure of the penis (each dorso-lateral lobe of phallobase with 1 pair of large hook-shaped processes) (Fig. 2). The new species differs from the all congeners in the structure of the male anal tube with tapered and turned-up apex (Figs. 5, 6).

Tshurtshurnella konstanto Gnezdilov et Drosopoulos, sp. n. (Fig. 1–6)

Material. Holotype: ♂, Greece, Mavrolithari-Doris, 8.VIII.1986, leg. S. Drosopoulos (CD). Paratypes: Greece: 5 ♂, 8 ♀, as holotype (CD, ZIN); 9 ♂, 10 ♀, Fokis Province, Lefkaditi, 9.VIII.1986, leg. R.H. Cobben & P. de Vrijer (WU, ZIN).

Description. Corypha 2.5–3.0 times as wide as long, with median carina; anterior margin weakly arcuately or obtuse-angularly curved, posterior margin arcuately concave. Margins of corypha keel-shaped projecting. Metope elongate, with distinct median carina and strongly smoothed sublateral carinae. Pronotum with median carina. Scutellum with lateral carinae. Fore wing narrowed toward apex, without hypocostal lobe, *R2M1–2CuA1*. Hind wing rudimentary. Hind tibia with 2 lateral spines in upper part, 1st segment of hind tarsus with 1 intermedial socle seta.

General coloration pale brownish. Head, pronotum, and scutellum brownish to dark brownish, except for pale longitudinal carinae of corypha, pronotum, and scutellum. Longitudinal veins of fore wing edged with dark brownish stripes. Each fore wing usually with 3 puncture-shaped dark brownish spots: 1 between *M* and *CuA* at base of wing and 2 between *R2* and *M2* in



Figs. 1–6. *Tshurtshurnella konstanto* sp. n., male genitalia: (1) penis, ventral view; (2) penis, lateral view; (3) stylus, lateral view; (4) stylus, dorsal view, (5) anal tube, lateral view, (6) anal tube, dorsal view.

its middle part. Apical cell of fore wing with dark brownish spot at apex. Femora and tibiae with longitudinal dark brownish stripes. Spines and socle setae of legs dark brownish.

Male genitalia. Posterior margin of pygophore straight. Anal tube short and wide, narrowed toward tapered and upcurved apex (Figs. 5, 6). Anal column long (half as long as anal tube) (Fig. 6). Dorsolateral lobes of phallobase short, each lobe with 1 pair of large processes narrowed toward apex, ventral process bearing teeth (Fig. 2). Ventral lobe of phallobase long, reaching ventral margin of phallotrema, narrowed toward truncate apex (Fig. 1). Aedeagus narrowed in middle part (ventral view) (Fig. 1), widened toward apex (lateral view), with 1 pair of short teeth along margins of phallotrema and 1 pair of long processes on upper side at base (Fig. 2), processes narrowed toward apices and bearing additional teeth. Ventral margin of phallotrema with 1 pair of short processes (Fig. 1). Stylus with convex posterior margin and widely rounded caudodorsal angle (Fig. 3). Capitulum of stylus on short neck, ledge-shaped narrowed toward apex (dorsal view) (Fig. 4). Lateral tooth of stylus in form of wide lobe, apical tooth large.

Female. Posterior margin of sternite VII widely emarginate. Anal tube elongate, lanceolate, narrowed toward apex (dorsal view); lateral margins reflexed.

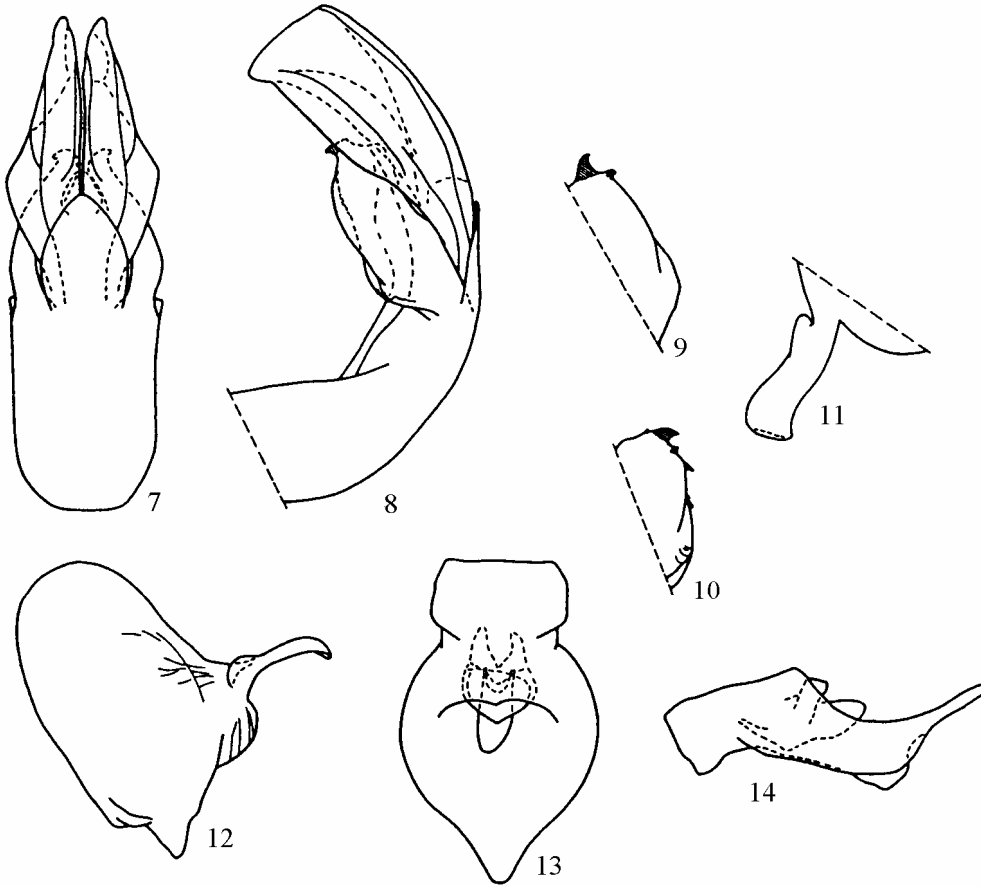
Body length 3.5 in male, 3.8 mm in female.

Etymology. The species name originates from the Greek feminine name Κουτσάυτο.

Genus *ZOPHERISCA* Emeljanov, 2001

The genus comprises species distributed in the Balkan Mts. *Zopherisca tendinosa* (Spinola, 1839) was described from Croatia and later recorded in Bulgaria, Macedonia, and Greece (Metcalf, 1958; Dlabola, 1974). According to the data available, the distribution range of *Z. penelopae* (Dlabola, 1974) covers the Peloponnesus (Dlabola, 1974) and Attica Province in the southeastern part of continental Greece. *Z. tendinosa* and *Z. penelopae* only slightly differ from each other in the shape of the corypha (Dlabola, 1974, fig. 33, 41), but clearly differ in the structure of the male genitalia (see key) and in the number of chromosomes [*Z. tendinosa skaloula* subsp. n. and *Z. penelopae* were examined] (Maryańska-Nadachowska et al., 2006).

Larvae of *Z. tendinosa skaloula* subsp. n. and *Z. penelopae* were found on *Quercus coccifera*.



Figs. 7–14. *Zopherisca tendinosa tendinosa* (Spinola), male genitalia: (7) penis, ventral view; (8) penis, lateral view; (9, 10) isolated dorsolateral lobe of phallobase (different specimens); (11) capitulum of stylus, dorsal view; (12) stylus, lateral view; (13) anal tube, dorsal view; (14) anal tube, lateral view.

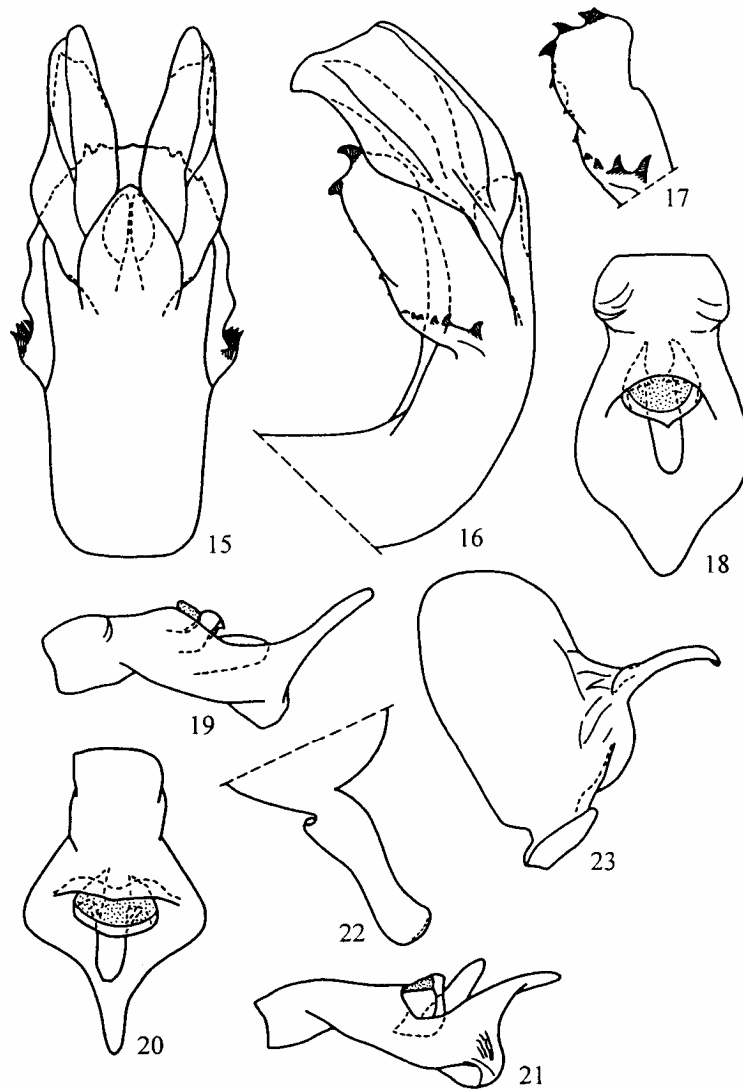
The examined individuals of *Z. tendinosa* are clearly subdivided into two groups according to the presence or absence of a row of large teeth at sides of the dorsolateral lobes of the phallobase below the subapical process (Figs. 7–10, 15–17). We suppose to distinguish two subspecies of *Z. tendinosa*: *Z. tendinosa tendinosa* and *Z. tendinosa skaloula* subsp. n. (see key). The nominotypical subspecies is distributed in Croatia, southern Bulgaria, and northwestern Greece. The new subspecies is known from southeastern continental Greece, including the Peloponnesus.

A Key to Species and Subspecies of the Genus *Zopherisca*

1 (2). Corypha wider, anterior margin usually gently arcuately convex. Gonoplasts of female dark brownish to black, with large pale yellow spots at sides. Anal tube of male truncate at apex (dorsal view) (Fig. 28). Apical processes of aedeagus without lateral lobes, narrowed toward narrowly

rounded apices (lateral view) (Fig. 25). Ventral lobe of phallobase long, narrow (Fig. 24). Stylus with slightly convex posterior margin (Fig. 27) *Z. penelopeae* (Dlabola).

- 2 (1). Corypha narrower, anterior margin obtuse-angularly convex. Gonoplasts of female dark brownish to black, with small inconspicuous pale yellow spots at sides. Anal tube of male sharply narrowed toward apex (dorsal view) (Figs. 13, 20). Each apical process of aedeagus with long lateral lobe, apices of processes widely truncate (lateral view) (Figs. 8, 16). Ventral lobe of phallobase short, wide, narrowed toward apex (Figs. 7, 15). Stylus with strongly convex posterior margin (Figs. 12, 23).
- 3 (4). Dorsolateral lobes of phallobase with lateral transverse edging formed by large teeth (Figs. 15–17). Lateral lobe of apical process of aedeagus distinctly more convex in middle part



Figs. 15–23. *Zopherisca tendinosa skaloula* subsp. n., male genitalia: (15) penis, ventral view; (16) penis, lateral view; (17) isolated dorsolateral lobe of phallobase (another specimen); (18, 20) anal tube, dorsal view (different specimens from Mornos and Peloponnesus); (19, 21) anal tube, lateral view; (22) capitulum of stylus, dorsal view; (23) stylus, lateral view.

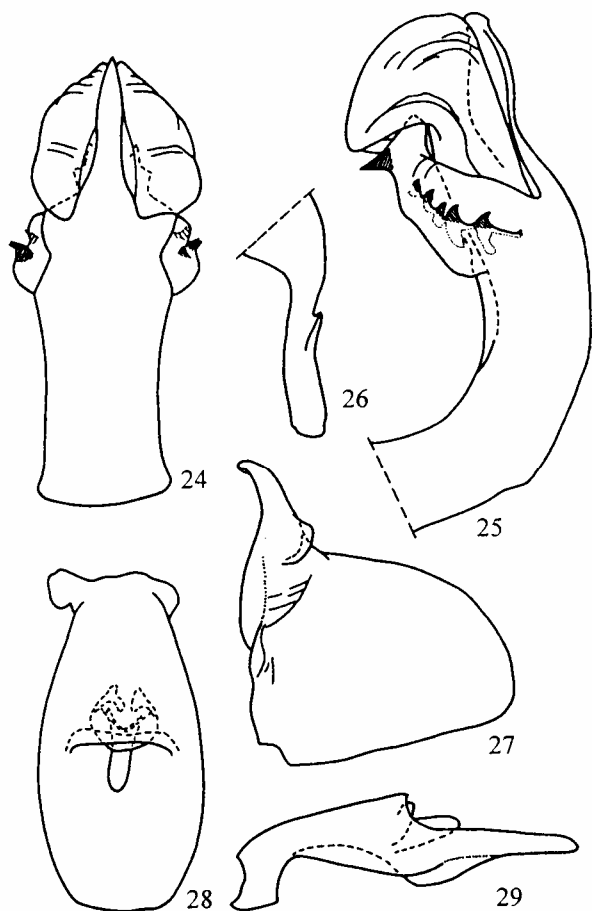
(Fig. 16). Anal tube of female narrowly rounded at apex *Z. tendinosa skaloula* subsp. n.

- 4 (3). Dorsolateral lobes of phallobase without lateral transverse edging formed by large teeth (Figs. 7–10). Lateral lobe of apical process of aedeagus uniformly convex along entire length (Fig. 8). Anal tube of female widely rounded at apex *Z. tendinosa tendinosa* (Spinola).

Zopherisca tendinosa tendinosa (Spinola, 1839)
(Figs. 7–14)

Material. 1 ♂, 1 ♀, Croatia, Ragusa (IRSNB). Bulgaria: 2 ♂, 3 ♀, Boboshevo, Vlahina Mt., 600–700 m, 27–28.VII.2000, V.M. Gnezdilov (ZIN); 3 ♂,

2 ♀, same locality, 15.VI.2001, A.F. Emeljanov (ZIN); 1 ♂, 10 km EWE of Petrovo, Slavyanka Mt., 600 m, 31.VII.2000, V.M. Gnezdilov (ZIN); 2 ♀, Polska Skakavitsa, 17.VI.2001, A.F. Emeljanov (ZIN); 1 ♂, 3 ♀, Stara Kresna, 1–2.VII.2001, A.F. Emeljanov (ZIN); 1 ♀, Lyubimets, 13.VI.1983, V. Bairyamova (BIZ); 1 ♂, Sandanski, 23.VI.1956, R. Bielawski and A. Goljan (PAN). Greece: 1 ♂, Fiorina Province, N of Fiorina, ~ 1200 m, 18.VII.1986, R.H. Cobben and P. de Vrijer leg. (WU); 3 ♂, 2 ♀, Grevena Province, Agios Theodoris, 29.VI.1985; 2 ♀, same locality, 18.VI.1985; 1 ♂, same locality, 14.IV.1992, all leg. S. Drosopoulos (CD, ZIN); 1 ♂, Kavala Prov., Thassos Upper Valley, “plane woodland,” 25.V.2003, A.P. Fowles (NMWC).



Figs. 24–29. *Zopherisca penelopae* (Dlabola), male genitalia: (24) penis, ventral view; (25) penis, lateral view; (26) capitulum of stylus, dorsal view; (27) stylus, lateral view; (28) anal tube, dorsal view; (29) anal tube, lateral view.

Body length 6.7–6.8 mm in males, 6.8–7.0 mm in females.

***Zopherisca tendinosa skaloula* Gnezdilov et Drosopoulos, subsp. n. (Figs. 15–23)**

Material. Holotype: ♂, Greece, Fokis Province, Mornos Reresi, 4.VI.1995, leg. S. Drosopoulos (CD). Paratypes: Fokis Province: 1 ♂, 2 ♀, as holotype; 1 ♂, same locality, 24.V.2003; 5 ♂, 4 ♀, Skaloula-Doris, 16.VII.1987; 2 ♂, 5 ♀, same locality, 2.V.1985; 1 larva, same locality, 27.II.1983; 1 ♂, same locality, 17.V.1981, all leg. S. Drosopoulos (CD, ZIN); Messinia: 1 ♂, 1 larva, Dorion, 1.V.1985, S. Drosopoulos leg. (CD, ZIN); Fthiotis Province: 1 ♂, environs of Makrakomi, 25.V.1998, leg. V. Vedenina (ZMUM); Peloponessus: 3 ♂, 6 ♀, 1 larva, Taigetos Mt., near Anogia, 1000 m, 2.VI.1989 (CD); 2 ♂, 1 ♀, Killini Mt., near Agios Nikolaos, 12.VI.1989; 1 ♂,

Tripi-Artemisia, 6.VI.1989; 1 ♂, 2 ♀, Panahaiko Mt., Leondi, 16.V.1990, all leg. R. Linnavuori (NMWC).

Body length 6.0–7.5 mm in males, 6.1–6.8 mm in females.

Etymology. The subspecies name originates from the name of settlement “Skaloula.”

***Zopherisca penelopae* (Dlabola, 1974) (Fig. 24–29)**

Material. Greece: Peloponessus; 1 ♂, Lakonia, Parnon, 12 km SE Agios Petros, 1200–1600 m, 6.VI.1993; 1 ♂, 1 ♀, Tripi, W of Sparti, Taigetos Mt., 200 m, 30.V.1993, all leg. J. P. Duffels (ZMAN); 8 ♂, 11 ♀, Kynouria, Agios Andreas, 14.IV.1988, S. Drosopoulos leg. (CD); 3 ♂, 3 ♀, near Vrodamas, 3–4.VI.1989; 1 ♂, Agios Anarqiri, 3.VI.1989; 1 ♀, Kalavrita, 11.VI.1989; 1 ♂, Oligirtos Mt., 13.VI.1989; 4 ♀, Parnonas Mt., Kastanitsa, 15.VI.1989; 1 ♀, same locality, 27.V–1.VI.1989; 1 ♀, Parnonas Mt., Agios Petros, 15.VI.1989; 1 ♂, 4 ♀, Parnonas Mt., Platanos, 29.V.1989; 1 ♀, Parnonas Mt., ?Sitena, 31.V.1989; 2 ♂, 2 ♀, near Kehries, 26.V.1989; 1 ♂, Epidaurus, 26.V.1989; 1 ♂, 2 ♀, Pyrgiotika, 26.V.1989, all leg. R. Linnavuori (NMWC); 3 ♂, 5 ♀, Dervenakia, 6.V.1995; 3 ♂, Nea Epidaurus, 25.V.1989, 3 ♀, Nafplio-Pyrgiotika, all leg. S. Drosopoulos (CD). Attika Province: 1 ♂, Emge, “Aeq. 1960,” C. & O. Vogt leg. (ZMAN); 1 ♀, Athens, Ath. Diakou, 5.V.1995, “on scrubby hillside,” M.V.L. Barclay (BMNH); 3 ♂, Avion, 31.V.1989, S. Drosopoulos leg. (CD).

Body length 6.5 in males, 6.2–6.6 mm in females.

ACKNOWLEDGMENTS

The authors are grateful to Dr. Peter de Vrijer (Wageningen, Netherlands), Dr. Johannes P. Duffels (Amsterdam, Netherlands), Jerome Constant (Brussels, Belgium), Dr. Mike R. Wilson (Cardiff, UK), Dr. Max V.L. Barclay (London, UK), Ilia G”onov (Sofia, Bulgaria), Dr. Jacek Szwedo (Warsaw, Poland), and Dr. D.Yu. Tishetshkin (Moscow, Russia) for the material supplied for examination.

The study was financially supported by the Ministry of Education of Greece, Royal Society of Great Britain, and Russian Foundation for Basic Research (grant 06-04-48427).

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