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The digitalization of Acarologia papers prior to 2000 was supported by Agropolis Fondation under the reference ID 1500-024 through the « Investissements d’avenir » programme (Labex Agro: ANR-10-LABX-0001-01)

Acarologia is under free license and distributed under the terms of the Creative Commons-BY-NC-ND which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original author and source are credited.
PHYTOSEIID MITES OF MOROCCO, WITH DESCRIPTIONS OF TWO NEW SPECIES AND NOTES ON THE GENERA KUZINELLUS, TYPHLOCTONUS AND TYPHLODROMUS (ACARI: PHYTOSEIIDAE)

BY J. A. MCMURTRY * and MALIKA BOUNFOUR **

PHYTOSEIIDAE MOROCCO TAXONOMY

Summary: A survey of phytoseiid mites on citrus and various other plants in Morocco yielded 17 species, two of which are new. Descriptions are presented for Kuzinellus saharae n. sp. and Kampimodromus hmiminai n. sp. and a supplementary description is given for Amblyseius italicus (Chant). Notes are included on the authors' concepts of the genera Kuzinellus, Typhloctonus and Typhlodromus.

PHYTOSEIIDAE MAROC TAXONOMIE

Résumé: Un inventaire des acariens Phytoséiides associés aux Agrumes ainsi qu'à d'autres plantes a été réalisé au Maroc. Il en est ressorti 17 espèces dont deux sont nouvelles. Les descriptions de Kuzinellus saharae n. sp. et de Kampimodromus hmiminai n. sp. sont présentées. De plus, une description supplémentaire d'Amblyseius italicus (Chant) est donnée. Des notes sur la conception par les auteurs, des genres Kuzinellus, Typhloctonus et Typhlodromus sont aussi rapportées.

Collections of Phytoseiidae were made in various parts of Morocco during April and May of 1982 during a survey for natural enemies of phytophagous mites on citrus for possible introduction into California for biological control of pest mites. Some additional collections were made in 1985-86. Of the 17 species reported in this paper, two are described as new and 11 are known from neighboring Algeria, from long-term studies by C. Athias-Henriot.

All measurements are in microns, showing means and ranges. The setal nomenclature follows that of Chant & Hansell (1971), Rowell et al. (1978) and Chant & Yoshida Shaul (1978).

Genus Kuzinellus Wainstein

Paraseiulus (Kuzinellus), Karg, 1983 : 322.

We consider the genus Kuzinellus to be equivalent to the ecclesiasticus species group, characterized by Chant & Yoshida-Shaul (1986). This genus is distinguished from Paraseiulus Muma as defined by Wainstein (1976) by the shape of the ventrianal shield and by the presence of 4, rather than 2, pairs of setae on that shield. We consider Paraseiulus to be equivalent to the soleiger species group, defined

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by Chant & Yoshida-Shaul (1982). Unlike Paraseiulus, which seems to be a uniform, natural grouping, Kuzinellus probably is not a single natural assemblage of species (e.g. contrast K. kuzini (Wainstein) with K. ecclesiasticus (DeLeon) or K. prunus (van der Merwe)).

**Kuzinellus saharae**
McMurtry and Bounfour n. sp.

**Female**: (Figs. 1-4) (7 specimens measured).
Dorsal shield 326 (300-354) long, 152 (144-174) wide at level of s4, reticulated over entire surface, with 18 pairs of setae, the bases of which arise from tubercules. Sensillae and glandular openings difficult to discern. Setae j1 20 (18-22), j3 32 (30-36), j4 29 (26-30), j5 31 (30-36), j6 47 (44-48), J2 54 (48-60), J5 7-8, z2 27 (24-30), z3 31 (27-36), z4 32 (30-36), z5 36 (36-37), z6 40 (31-42), Z4 59 (54-60), Z5 58 (54-60), s4 37 (36-38), s6 44 (42-48), S2 53 (48-56), S4 51 (48-56), S5 42 (36-46); r3 29 (28-30) and R1 37 (36-39), both on membrane adjacent to dorsal shield. Peritreme extending anteriorally almost to level of setae j1.

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1. — Dorsal shield; 2. — Ventral surface; 3. — Spermatheca; 4. — Chelicera.
Sternal and genital shields weakly sclerotized, ill-defined; ventrianal shield width 57 (48-65) at widest anterior level (at ZV2), 44 (42-45) at narrowest level (near middle) and 58 (54-60) at level of anus. Four pairs of preanal setae on shield (one pair, JV3, missing on one specimen). Ventrolateral setae ZV1, ZV3, JV4 and JV5 present; JV5 48 (45-52). Length of primary metapodal plate 35, width 3.

Spermatheca small, indistinct; cervix narrow (1 μ), parallel-sided but flared at distal end, 9-12 long. Fixed digit of chelicera 31, with 3 teeth; movable digit 30, with 1 tooth. Legs without macrosetae. Chetotaxy of Ge II 2, -, 1; Ge III 1, 2-2, 1; TiII 1, 1-2, 1: TiIII 1, 1-2, 1.

**Male**: Unknown.

**Locality and type material**: Holotype female, in U.S. National Museum of Natural History (USNMNH), and 2 paratype females, in University of California, Riverside, Division of Biological Control (UCR) from olive, *Olea europaea*, Zagora, Morocco 11-V-82. Four additional paratype females (in UCR) from Cupressus, same location and date.

**Remarks**: *K. saharae* resembles *K. kuzini* (Wainstein) but can be distinguished from that species by the longer setae on the dorsal shield (CHANT & YOSHIDA SHAUL, 1986), by having 1 rather than 2 teeth on the movable digit of the chelicera, and by the narrow, tubular rather than saccular cervix of the spermatheca.

This species is also similar to *K. sennarensis* (ElBadry) but that species has R1 inserted on the dorsal shield rather than on the lateral integument (ELBADRY, 1967; CHANT & YOSHIDA SHAUL, 1986). Also, in CHANT & YOSHIDA SHAUL's redescription, which was not based on type material, the cervix of the spermatheca of *K. sennarensis* is considerably longer than in *K. saharae*.

**Genus Typhloctonus Muma**


Most species placed in this genus by DENMARK & RATHER (1984) have one or no macrosetae on leg IV, fewer than 6 teeth on the fixed digit of the chelicera, all of which is distal to the *pilus dentilis*, and the spermatheca with a cup-shaped (often shallow) cervix (saccular in *tiliarum*), in addition to the presence of seta Z1. Exceptions are: *T. myopori* Collyer, which has multidentate chelicerae, and 3 long macrosetae on leg IV (we believe this species should be grouped with *T. cotti*eri Collyer, which DENMARK & RATHER (1984) place in *Tasminidromus* Wainstein); *T. prunus* Denmark and Rather from India; and *T. vollsella* Chaudhri from Pakistan. The last 2 species have 3 "knobbed, bacillate" macrosetae on leg IV.

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**Typhloctonus perforatus**

*(Athias-Henriot) New Combination*


**Specimen examined**: Morocco: El Jadida, 28-IV-82, 1 female, from *Ricinus communis*.

**Previous records**: Algeria (ATHIAS-HENRIOT, 1960a).

**Remarks**: The setal measurements of our specimens are close to those given by ATHIAS-HENRIOT (1960a) for specimens from Algeria. This species is included in *Typhloctonus*, based on the generic description of DENMARK & RATHER (1984), although these authors did not list it in their review of the genus.

**Typhlodromus Scheuten**

*Typhlodromus* SCHEUTEN, 1857 : 111.

We here include species of typhlodromine mites that have setae S2, S4 and R1 (*Typhlodromus* sensu SCHUSTER & PRITCHARD, 1963; KOLODOCHKA 1978; and KARG, 1983) as well as those species which have setae S5 in addition to the above named setae (*Anthoseius* DeLeon sensu KOLODOCHKA, 1978 and KARG, 1983; or *Amblydromella* Muma sensu DENMARK & Muma, 1973). Because some of these species seem to differ only in the presence or
absence of seta S5 (e.g., *Typhlodromus athenas* SWIRSKI & RAGUSA, 1976; and *T. atticus* SWIRSKI & RAGUSA, 1976), we consider both of these groups of species to be *Typhlodromus*. Except for the presence of S5, some species considered to be *Amblydromella* (or *Anthoseius*) are closer to species lacking S5 (*Typhlodromus s.s.*) than they are to many of the species with S5 present. In fact, it is conceivable that this character is subject to intraspecific variation.

*Typhlodromus athenas* Swirski and Ragusa


**Specimens examined**: Morocco: Beni Melal, 4-V-82, 3 females, from *Malva* sp., 2 females, from olive; Italy: Polizzi Generosa (PA), 7-XII-73, 1 female, from olive; Greece: Athens (Kiphissia), 14-IV-80, 1 female, from olive.

**Previous records**: Greece (SWIRSKI & RAGUSA, 1976).

**Remarks**: Setal measurements of 3 specimens (means and ranges) are as follows: j1 24 (24-25), j3 29 (28-30), j4 18 (17-18), j5 19 (18-20), j6 23 (22-24), J2 25 (24-26), J5 8-9, z2 19 (18-20), z3 25 (24-26), z4 24, z5 18, Z4 48, Z5 60 (57-61), z4 29 (28-30), z6 31 (30-32), S2 33 (30-36), S4 34 (30-36), S5 23 (21-24), r3 28 (27-30), R1 27 (24-32), ST IV 47 (44-48); dorsal shield 358 (348-366) long 186 (180-192) wide. Lengths of setae and dorsal shield are all somewhat greater for Morocco specimens, compared to those recorded by SWIRSKI & RAGUSA (1976) for specimens from Greece. No other differences were noted between specimens from the two areas.

*Typhlodromus rhenanoides* Athias-Henriot

*Typhlodromus rhenanoides* ATHIAS-HENRIOT 1960a: 85.

**Specimens examined**: Morocco: Kenitra, 24-IV-62, 2 females, from *Cupressus*; Italy: Palermo, 19-II-75, 2 females, from *Rosmarinus officinalis*; USA: California: Monterey, 6-VI-72, 2 females, from *Pinus radiata*; San Jose, 5 females, from *Juglans* sp.

**Previous records**: Algeria (ATHIAS-HENRIOT, 1960a); Spain (FERRAGUT et al., 1983); Italy (RAGUSA, 1977); USA — California (SCHUSTER & Pritchard, 1963; CHARLET & McMURTRY, 1977); USA — Hawaii (PRASAD, 1968).

**Remarks**: Setal measurements of the 2 Morocco specimens are as follows: j1 24, j3 24-30, j4 18, j5 18-24, j6 18-22, J2 24-26, z2 12-14, z3 24, z4 24-26, z5 18-22, Z4 43-48, Z5 58-60, s4 26-30, s6 30, S2 36, S4 36-42, S5 24-28. These measurements are similar to those of specimens from Algeria (ATHIAS-HENRIOT, 1960a), California (SCHUSTER & Pritchard, 1963), and 2 specimens from Italy.

*Typhlodromus ilicis* Athias-Henriot

*Typhlodromus ilicis* ATHIAS-HENRIOT 1960a: 95.

**Specimen examined**: Morocco: Azilal, 1 female, 5-V-82, from *Quercus*.

**Previous records**: Algeria (ATHIAS-HENRIOT, 1960a).

**Remarks**: Besides the holotype, also from Quercus, this is the only other record of this characteristic species, which has a small ventrianal shield bearing only 2 pairs of preanal setae.

*Typhlodromus laurentii* Ragusa and Swirski


**Specimens examined**: Morocco: Marrakech, 6-V-82, 4 females, from olive; Beni Melal, 4-V-82, 8 females, from olive, 3 females, from *Cupressus* sp.; Taraoudant, 5-V-86, 1 female, from *Cynodon dactylon*. Italy: Palermo, 17-X-79, 1 female, from *Ilex aquifolium*.

**Previous records**: Italy (RAGUSA & SWIRSKI, 1978).

**Remarks**: Measurements of setae were made on 13 specimens from 3 locations in Morocco, and the means corresponded very closely to the values given for type material from Italy (RAGUSA & SWIRSKI, 1978).
**Typhlodromus phialatus** Athias-Henriot

Typhlodromus phialatus *Athias-Henriot*, 1960a : 100.

*Specimens examined*: Morocco: Sidi Bennour, 29-IV-82, 2 females, from weed in citrus orchard; Ait Melloul (near Agadir), V-1-86, 1 female, from Argania spinosa.


**Genus Neoseiulus** Hughes


*Neoseiulus stolidus* Chaudhri


*Specimens examined*: Morocco: Beni Melal, 4-V-82, 3 females, from *Hordeum* sp.; Taroudant, 5-V-86, 1 female, from *Cynodon dactylon*; Turkey: Balcali, 1-III-81, 3 females, from *Phaseolus* sp.

*Previous records*: Pakistan (*Chaudhri*, 1968).

*Remarks*: Our specimens conform closely to *Chaudhri*'s description, including the setal measurements, and also to specimens from Turkey, collected by E. Sekeroglu and loaned by H. A. Denmark. Attempts to borrow the holotype were unsuccessful and there are no paratypes deposited in the British Museum and USNMNH as indicated in *Chaudhri*'s paper.

**Neoseiulus cucumeris** (Oudemans) New Combination

Typhlodromus cucumeris *Oudemans*, 1930 : 69.

*Typhlodromus (Amblyseius) cucumeris*, CHANT 1959 : 78.


*Specimens examined*: Morocco: El Jadida, 29-IV-82, 1 female, from strawberry; Azemour, 30-IV-82, 2 females, from *Ricinus communis*; USA — California: El Toro (Orange County), 11-V-65, 3 females, from strawberry.

*Previous records*: Numerous records, including Europe, Middle East, North Africa, Asia, North America, Australia (*Moraes*, et al., 1986).

*Remarks*: The Morocco specimens conform closely to the redescriptions of *Schuster & Pritchard* (1963) and *Schicha* (1976) for *N. cucumeris*.

**Genus Kampimodromus** Nesbitt

*Kampimodromus* NESBITT, 1951 : 52; *Muma & Denmark* 1968 : 234.


**Kampimodromus hmininai**

McMurtry & Bounfour n. sp.

*Female* (Figs. 5-8) (10 specimens measured). Dorsal shield 321 (302-336) long, 167 (152-180) wide, lightly sclerotized, with faint reticulations in lateral areas and creases in central areas, with 16 pairs of setae. Setae *j1* 18 (17-19), *j3* 40 (36-48), *j4* 14 (12-16), *j5* 11 (10-12), *j6* 16 (12-18), *j2* 12 (10-14), *j5* 6, *z2* 30 (26-36), *z4* 48 (44-52), *z5* 14 (10-17), *z1* 12 (10-16), *Z4* 79 (72-86), *Z5* 71 (64-80), *s4* 67 (60-74), *S2* 76 (72-86), *S5* 12 (10-14). Setae *r3* 39 (36-42), inserted on membranous cuticle next to dorsal shield (except for 1 specimen, which has setae inserted on dorsal shield); *R1* 28 (24-36), inserted on membrane. Setae *j4* through *j6*, *J2*, *J5*, *z5*, *Z1* and *S5* smooth, all others distinctly serrated. Peritreme 109 (92-118), extending approximately to level of base of setae *z2*. 

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Sternal shield weakly sclerotized, ill-defined, genital shield width at level of setae 55 (48-60); ventrianal shield oval, 84 (78-88) long, 46 (40-48) wide at level of anal opening, bearing only 1 pair of preanal setae (JV2); JV1, ZV2, as well as the usual ZV1, ZV3, JV4 and JV5 present on membrane surrounding shield; JV5 serrated, 29 long. Primary metapodal plate 29 long, 2-3 wide.

Cervix of spermatheca bowl-shaped (poculiform), atrium distinct. Fixed digit of chelicera 23, with apical tooth plus 3 small teeth near distal end; movable digit edentate, 23. Small macroseta only on tarsus IV, 24 (20-30) long. Chetotaxy of GeII 2, \( \frac{2-2}{1} \); Ge III 1, \( \frac{2-2}{1} \); Ti II 1, \( \frac{1-2}{2} \); Ti III 1, \( \frac{1-2}{2} \).

**Male** : Unknown.

**Locality and type material** : Holotype female (in USNMNH) from fig leaf, Sidi-Bennour, Morocco,
29-IV-82. Six paratypes (in University of California, Riverside, Division of Biological Control), same data. Three additional paratypes from fig, Agdz (near Zagora), 11-V-82, and one paratype from fig, Taliouine, 12-V-82, all in UCR. Also collected in El Hajeb on fig.

Remarks: The placement of this species in the genus Kampimodromus is considered provisional, as the genus needs to be redefined. The new species seems most closely related to K. aberrans (Oudemans) in sharing the following characters: (1) similar dorsal shield chetotaxy (S4 absent); (2) setae j1, j3, z2, z4, Z4, Z5, s4 and S2 strongly serrated; (3) bowl-shaped cervix of the spermatheca and small, distinct atrium; (4) small cheliceral digits, with only about 3 teeth on the fixed digit, ali distal to the pilus dentilis. Amblyseius (Kampimodromus) maritimus Ehara and K. hevae (Oudemans) are similar in all of the above characters except (1), as they also lack seta j2. Z1 is also serrated on maritimus. K. langei Wainstein & Arutunjan apparently has all dorsal shield setae serrated. Amblyseius trichopilus Blommers differs in character (1) in that S4 is present. K. hmininai n. sp. differs from all of these similar species in having an oval-shaped ventrianal shield with only one pair of preanal setae rather than a long, narrow shield with 3 pairs of preanal setae.

Genus Proprioseiopsis Muma


Proprioseiopsis messor (Wainstein) New Combination

Typhlodromus messor WAINSTEIN 1960 : 668.

Specimens examined: Morocco: Beni Melal, 5-V-82, 1 female, from Hordeum sp.; 1 female, from "ornamental". Previous records: USSR (WAINSTEIN, 1960; LIVSHITZ & KUZNETSOV, 1972); Algeria (ATHIAS-HENRIOT, 1961); Australia (SCHICHA. 1983); East Germany (KARG, 1965); Israel (SWIRSKI & AMITAL, 1965, 1968; AMITAI & SWIRSKI, 1978); Italy (ATHIAS-HENRIOT, 1961; Ragusa, 1977); South Africa (ATHIAS-HENRIOT, 1966); Spain (ATHIAS-HENRIOT, 1966).

Amblyseius italicus (Chant)

Typhlodromus (Amblyseius) italicus CHANT, 1959 : 70.

Specimens examined: Italy (intercepted at New York, USA), 12-IX-50, 4 female syntypes (holotype not indicated) from beech leaves; Morocco: El Jadida, 29-IV-82, 2 females, from cucumber leaves in greenhouse.

Supplementary description: Based on 4 syntypes. Dorsal shield smooth, 440 (420-450) long, setae j1 38 (36-42), j3 58 (50-62), z2 32 (28-36), z4 42 (36-48), Z4 100 (96-108), Z5 225 (216-228), s4 120 (108-126), ali other setae on dorsal shield minute (10 μm or less); r3 26, R1 20.

Genital shield width 84 (1 specimen measured); ventrianal shield length 127, anterior width 66, narrowest width (just in front of level of setae JV2) 54, width at level of anus 88; JV1 and JV2 only preanal setae on ventrianal shield, setae ZV2 on membrane along with ZV1, ZV3, JV3 and JV4. Posterior margin of sternal shield straight, except for small lateral lobes, on which setae STIII are inserted.

Six teeth plus pilus dentilis on fixed digit of chelicera, 4 teeth on movable digit. Cervix of spermatheca funnel-shaped, tubular at base (Fig. 9), atrium indistinct. Macrosetae on Ge IV 107 (96-114), TiIV 71 (68-72), TiV 83 (78-81). Macrosetae also present on Ge I, II, III.

Amblyseius graminis Chant

Typhlodromus (Amblyseius) graminis, CHANT 1959 : 89.

Specimen examined: Morocco: El Jadida, 28-IV-82, 1 female, from Malva sp.
Previous records: England (CHANT, 1956); Algeria (ATHIAS-HENRIOT, 1961); USSR (LIVSHITZ &
KUZNETZOV, 1972); Poland (WIACKOWSKI & SUSKI, 1963); Germany (KARG, 1965); Spain (ATHIAS-HENRIOT, 1961). Additional references in MORAES et al. (1986).

Remarks: Measurements of various setae on the specimen from Morocco are: \(j_1 29, j_3 44, z_2 26, z_4 38, (Z_4\) broken), \(Z_5 88, s_4 56, S_2 54, S_{gel IV} 56, S_{ri IV} 44, S_{ri V} 79\). These measurements generally conform closely with those given by ATHIAS-HENRIOT (1961) and LIVSHITZ & KUZNETZOV (1972), but differ from some of those given by WESTERBOER & BERNHARD (1963).

Although this species is retained in Amblyseius in this paper, we recognize that it differs from Amblyseius s.s., as defined by MUMA et al. (1970) and DANMARK & MUMA (1973) in having fewer than 8 teeth on the fixed digit of the chelicera, macrosetae absent on legs I-III, and no erect seta on basitarsus I.

Genus Phytoseiulus Evans

Phytoseiulus Evans 1952 : 397.

Phytoseiulus persimilis Athias-Henriot


Specimens examined: Morocco: Beni-Melal, 5-V-82, 5 females, from ornamental next to house; El Jadida, 29-IV-82, 1 female, from Capsicum frutescens in greenhouse, 1 female, from strawberry, 1 female, from Malva; Sidi Bennour, 29-IV-82, 1 female, from fig tree, 5 females from herbaceous plants in orchard.

Previous records: Algeria (ATHIAS-HENRIOT, 1957), France, Tunisia (RAMBIER, 1972); Libya (HESSEIN, 1976); Lebanon (DOSSE, 1967); Greece (SWIRSKI & RAGUSA, 1977); Italy (LOMBARDINI, 1959; McMURTRY, 1977; RAGUSA, 1977); Israel (AMITAI & SWIRSKI, 1978); Chile (DOSSE, 1958; GONZALEZ, 1961); Australia (GOODWIN & SCHICHA, 1979); USA — California (McMURTRY et al., 1978); South Africa (MEYER, 1981); Peru (ELBENHAWY, 1979); Spain (FERRAGUT et al., 1983).

Remarks: Collection records suggest that P. persimilis is native to the Mediterranean region, possibly to North Africa. Its occurrence in other parts of the world probably is the result of introductions. P. persimilis is generally found only in coastal, subtropical environments. The collection from Beni-Melal, Morocco, a hot, dry area, was from plants next to a house in a shaded situation. Another unusual record is from an oasis in Tunisia, which also is probably a humid microenvironment (RAMBIER, 1972). In Morocco, P. persimilis was found naturally occurring in plastic greenhouses, apparently surviving pesticide treatments on cucumbers and sweet peppers.

Genus Euseius

Amblyseius (Amblyseius), section Euseius WAINSTEIN 1962 : 15.
Amblyseius (Euseius), DELEON 1965b : 125.

Euseius scutalis (Athias-Henriot) New Combination

Typhlodromus (Amblyseius) finlandicus, subsp. rubini SWIRSKI & AMITAI 1961 : 196.
Amblyseius delhiensis NARAYANAN & KAUR, 1960 : 5.
Amblyseius libanesi DOSSE 1967 : 30.
Amblyseius gossipi ELBADRY 1967 : 177.

Specimens examined: Morocco: More than 100 females from 29-IV-82 to 11-V-82 from the following plants and locations: Citrus from Beni Melal, Marrakech, Agadir; fig, apple, Datura stramonium, near Zagora; apricot, Zagora. Israel: Ein Gedi, 11-III-63, 1 female, from Calotropis sp.; Bet Dagan, 25-VIII-64, 2 females, from Persea americana; 2 females, from Ricinus communis. Jordan: Jordan Valley, 9-IV-84, 7 females, from Lantana.

Previous records: Based on synonymies given above and by WYSOKI & BOLLAND (1983), E.
scutalis has a distribution extending from Spain, through North Africa and the Middle East, to India (see Boufour & McMurtry, 1987, for additional references).

Remarks: E. scutalis was the main phytoseiid mite collected on citrus in the interior valleys (e.g. Marrakech, Beni Melal) and the relatively dry southern coast (Agadir). It was not collected in the more humid coastal areas, such as Kenitra and Rabat, where E. stipulatus was the dominant species. Its distribution extends to desert areas such as Zagora in Morocco, where it was collected on fruit trees, and the Dead Sea region of Israel, where it occurs on numerous species of plants (Swirski & Amitai, 1985).

Euseius stipulatus (Athias-Henriot)


Specimens examined: Morocco: Rabat, VI-82, 12 females, from Persea americana; 14 females, from Citrus spp.; 3 females, from Datura sp.; Kenitra, 24-IV-82, 14 females, from Citrus; Azemmour, 30-IV-82, 9 females, from Citrus; El Jadida, 28-IV-82, 11 females, from Ricinus communis; 1 female, from Malva.

Previous records: Algeria (Athias-Henriot, 1960b), Spain, Italy, Greece, Turkey (Ragusa & Swirski, 1976; Swirski & Ragusa, 1976; McMurtry, 1977; Ragusa, 1977); USA — California (Introduced) (McMurtry, 1977).

Genus Iphiseius Berlese

Iphiseius Berlese, 1916: 33, nomen nudum; Berlese 1921: 95.

Iphiseius degenerans (Berlese)


Specimens examined: Morocco: Rabat, 8-V-82, 3 females, from Citrus.

Previous records: Numerous records from Africa, Middle East and southern Europe (Moraes et al., 1986).

Acknowledgments

Our thanks to the Institut National de la Recherche Agronomique, Rabat, Morocco, especially to M. Hmimina and A. S. Bennani for providing advice, facilities and transportation during the 1982 collecting trips, and to Mary McMurtry for assistance in collecting. We are grateful to E. Swirski, Volcani Center, Rohovot, Israel, for consultation and to L. A. Kolodochka, Academy of Sciences, Kiev, USSR, and H. A. Denmark, Florida Department of Agriculture and Consumer Services, Gainesville, for loan of specimens.

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