A NEW DEUTEROGYNOUS ERIOPHYID MITE (ACARI: ERIOPHYIDAE) FROM A SEMIDEciduous TREE IN SOUTHERN BRAZIL

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ABSTRACT - Aceria anisodorsum n. sp. is described from protogynes, males and deutogynes occurring simultaneously as leafvagrants on Caesalpinia peltophoroides Benth. collected in early spring in southern Brazil.

Key words - Acari, Eriophyoidea, deuterogyny, taxonomy, Brazil.

INTRODUCTION

In the life cycle of certain eriophyoid mites two different forms of females but usually only one form of male occur. This kind of development, deuterogyny, in an eriophyoid mite was indicated for the first time by Putman (1939) who observed it in Aculus fockeui (Nalepa and Trouessart, 1891) on plum, and was clearly explained by Keifer (1942) in relation to Shevtchenkella aesculifoliae (Keifer, 1938) on buckeye. The primary form, consisting of males and females (protogynes), can be so different from the secondary form, which usually occurs as female only (deutogyne), that often have been described as distinct species, sometimes in different genera. The exception is Trisetacus kirghizorum Shevtchenko, 1962 (Phytoptidae) which in first year has both a male and female ‘summer form’ in the berry of Juniperus semiglobosa Rgl. and in the second year both a male and female of the ‘winter form’ which in this case is the dispersal form of the mite. Alternate forms of both sexes ensure genetic diversity of this seed inhabiting phytopid. Deutogynes, inseminated prior to going to sheltered places, primarily promote survival through adverse conditions, and occur mainly on deciduous plants. However, a few deuterogynous eriophyid species have been described from evergreen plants: Eriophyes adenostomae (Keifer, 1976) on Adenostoma fasciculatum H. and A. (Rosaceae) in California, USA, Aceria simonensis Manson, 1984 and Cymoptus waltheri (Keifer, 1939) on Nothofagus menziesii (Hook) Oerst (Fagaceae) in New Zealand. The first record of deuterogyny in a tropical species was Aceria kenyae Keifer, 1966 (deutogyne described as Cisaberoptus) on mangos throughout the tropics and Aceria binarius Keifer, 1977 on Peltophorum pterocarpum Backer (Caesalpiniaeae) in Thailand (Manson and Oldfield, 1996).

In this publication we report a likely case of deuterogyny of an eriophyid mite in which protogynes and deutogynes have been collected from the same leaves of Caesalpinia peltophoroides Benth. (Caesalpiniaeae) in southern Brazil beginning in October (early spring).

Measurements are given in micrometers; for the protogyne holotype measurement precedes the corresponding range for paratypes. For the description of the different mite stages, the counts of the ventral opisthosomal annuli start from the genitalia rear margin and the counts of the dorsal opisthosomal annuli from the prodorsal rear shield margin.

Aceria anisodorsum n. sp. (Figs. 1, 2)

Diagnosis - Aceria anisodorsum is readily distinguished by the finer microtuberculation in the central area of the dorsal opisthosomal annuli in combination with 6-rayed empodia, rather long tarsal solenidia and subequal dorsal and lateral setae on tarsus 1.

PROTOGYNE (n = 5) - Body vermiform, 183 (163-188),56 (54-60) wide. Gnathosoma -Dorsal palpal genual seta (apical seta) 7 (5-8); basal seta 3 (3); cheliceral stylets 19 (18-22). Prodorsal shield - 39 (37-39) long (including anterior lobe), 43 (41-43) wide; frontal lobe rounded, 7 (5-7). Shield with median, admedian and
Fig. 1. *Aceria anisodorsum* n. sp. (protogyne and male) - CGF. coxigenital area of protogyne, D. dorsal view of protogyne, E. empodium and solenidion, GM. male genitalia, L1. leg 1 of protogyne, L2. leg 11 of protogyne.
Fig. 2. *Aceria anisodorsum* n. sp. (deutoxyne) - AD. anterior dorsal aspect, CD. caudal dorsal aspect, CGF. coxigenital area, LI. leg I, L2. leg II.

one submedian lines complete and two submedian lines incomplete; first and second submedian lines caudally arched, outlining an elevation in front of the scapular setal basis. Setiferous tubercles on rear shield margin, 26 (24-26) apart, directing scapular seta (se) backwards; se 33 (30-34). Legs - Leg I 28 (27-30); femur 8 (7-10), femoral seta (bv) 11 (8-12); genu 4 (3-4), genual seta (l') 25 (22-25); tibia 5 (5), tibial seta (t) 5 (4-9), tibia with a conspicuous dorsal distal spine; tarsus 6 (5-7), dorsal seta (fl') 19 (18-19), lateral seta (fl'') 21 (20-22), unguinal seta (u') 5 (5-6), solenidion straight, tapering, blunt, 9 (7-9), empodium 7 (6-7), 6-rayed. Leg II 26 (25-27); femur 8 (8-9); bv 11 (11-12); genu 5 (4-5); fl' 6 (6-9); tibia 4 (4-5), with a dorsodistal spine; tarsus 6 (5-6), fl' 6 (6-8), fl'' 20 (19-22), u' 4 (4), solenidion 10 (9-10), empodium 8 (5-8), 6-rayed. Coxigenital area - Coxae smooth; coxal seta I (l b) 8 (8-11), 13 (11-14) apart; coxal seta II (la) 14 (14-26), 8 (7-9) apart; coxal seta III (2a) 31 (31-42), 22 (19-23) apart; sternal line (prosternal apodeme) 7 (7-8). Coxisternal annuli 5 (5-6), microtuberculate. Genitalia - 20 (18-20) wide, 14 (11-14) long; epigynum with 11 (10-12) longitudinal ribs; genital seta (3a) 22 (21-32). Opisthosoma - Evenly arched in cross section. Lateral seta (c2) 25 (24-31), on annulus 3 (2-4) from genitalia rear margin; ventral seta I (d) 48 (48-50), 31 (30-36) apart, on annulus 14 (14-17); ventral seta II (e) 13
Opisthosoma - c2 18-19, on annulus 2-4; faint microtubercles. Genitalia - 9-11 wide; 16-17 long; tibia 3-4; tarsus with internai submedian, an elongate elevation in front of a faint median line extending over 2/3 of shield, smooth; 6-rayed. Leg 11 18-20; femur 5-7, genu 3-4, scapular seta basis. Legs - Leg I 20-23; femur 6-7, 3-4, submedian and submedian lines complete; a faintly marked margin, 18-10 apart. Frontal lobe rounded, 3-5. Shield ceras 11-13. Prodorsal shield - 26-29, including frontal lobe, 34-35 wide, se 22-24, 18-20 apart, on shield rear h2 43-45 or 6th from rear. Total dorsal annuli 53-54, microtubercules as in female; total ventral annuli 48-50; mur 7, 4, solenidion 7, empodium 5-6, 6-rayed. Leg 11 19-21; femur 6-7, 32-33, 26-28, 18-20 apart, on annulus 11-13; 3a sternal annuli 5, microtuberculate. Genitalia 14-16 wide; 6-rayed. Coxigenital area: ing frontal lobe, 34-35 wide, se 20-25, 23-24 apart. Frons 48-49 wide. Gnathosoma - Apical seta 5-6, basal seta not seen; chelicera 18-19. Prodorsal shield - 30-31, including frontal lobe, 34-35 wide, se 20-25, 23-24 apart. Frons 48-49 wide. Gnathosoma - Apical seta 4-6; chelicera 14-15, fi" 14-15, fi" 16-17, u' 4-5, solenidion 7-8, empodium 6-7, 6-rayed. Leg 11 18-20; femur 5-7, bv 7-9; genu 3, l" 17-20; tibia 4-5, l" 3-5; tarsus 4-5, fi' 13-14, fi' 15-17, u' 4, solenidion 7, empodium 5-6, 6-rayed. Leg 11 19-21; femur 7, bv 7-9; genu 2-3, l" 4-7; tibia 3-4; tarsus 4-5, fi' 3-5, fi' 16-18, u' 3, solenidion 8-9, empodium 5-6, 6-rayed. Coxigenital area: lb 7-8,11-12 apart; la 15-19, 5-7 apart; 2a 26-28, 18-19 apart; sternal line 6-7; coxisternal annuli 5, microtuberculate. Genitalia 11-13, including frontal lobe, 34-35 wide, se 22-24, 18-20 apart, on shield rear h2 43-45 or 6th from rear. Total dorsal annuli 53-54, microtubercules as in female; total ventral annuli 48-50; h2 44-51; hl 4-6.

DEUTOGYNE (n = 6) - Body vermiciform, 126-132, 42-46 wide. Gnathosoma - apical seta 5-6, basal seta not seen; chelicera 18-19. Prodorsal shield - 30-31, including frontal lobe, 34-35 wide, se 20-25, 23-24 apart. Frontal lobe 4-5. Legs - Leg I 25; femur 6-7, bv 6-9; genu 3, l" 17-20; tibia 4-5, l" 3-5; tarsus 4-5, fi' 13-14, fi' 15-17, u' 4, solenidion 7, empodium 5-6, 6-rayed. Leg 11 19-21; femur 7, bv 7-9; genu 2-3, l" 4-7; tibia 3-4; tarsus 4-5, fi' 3-5, fi' 16-18, u' 3, solenidion 8-9, empodium 5-6, 6-rayed. Coxigenital area: lb 7-8,11-12 apart; la 15-19, 5-7 apart; 2a 26-28, 18-19 apart; sternal line 6-7; coxisternal annuli 5, microtuberculate. Genitalia 11-13, including frontal lobe, 34-35 wide, se 22-24, 18-20 apart, on shield rear h2 43-45 or 6th from rear. Total dorsal annuli 53-54, microtubercules as in female; total ventral annuli 48-50; h2 44-51; hl 4-6.

Mal (n = 3) - Smaller than female, 131-136, 48-49 wide. Gnathosoma - apical seta 5-6, basal seta not seen; chelicera 18-19. Prodorsal shield - 30-31, including frontal lobe, 34-35 wide, se 20-25, 23-24 apart. Frontal lobe 4-5. Legs - Leg I 25; femur 6-7, bv 6-9; genu 3, l" 17-20; tibia 4-5, l" 3-5; tarsus 4-5, fi' 13-14, fi' 15-17, u' 4, solenidion 7, empodium 5-6, 6-rayed. Leg 11 19-21; femur 7, bv 7-9; genu 2-3, l" 4-7; tibia 3-4; tarsus 4-5, fi' 3-5, fi' 16-18, u' 3, solenidion 8-9, empodium 5-6, 6-rayed. Coxigenital area: lb 7-8,11-12 apart; la 15-19, 5-7 apart; 2a 26-28, 18-19 apart; sternal line 6-7; coxisternal annuli 5, microtuberculate. Genitalia 11-13, including frontal lobe, 34-35 wide, se 22-24, 18-20 apart, on shield rear h2 43-45 or 6th from rear. Total dorsal annuli 53-54, microtubercules as in female; total ventral annuli 48-50; h2 44-51; hl 4-6.

Type material - Holotype female (protogyne), 9 female (protopgyne), 17 male and 8 female (deutogyne) paratypes, from "sibipiruna", Caesalpinia peltophoroides Benth. (Caesalpiniaceae), Curitiba, Parana, Brazil, 25° 25' 40" S, 49° 16' 22" W, 930 m altitude, 3 October 2004, coll. D.L.Q. Santana, on 11 microscopic preparations, in the ACalrology Collection, Departamento de Entomologia, Fitopatologia e Zoologia Agricola, Universidade de Sao Paulo-ESALQ, Piracicaba, SP, Brazil.

Relation to host - Protogynes, males and deutogynes are all vagrants on leaves in early spring. Host plants were not sampled in other seasons.

Etymology - The specific designation, anisodor- sum, is derived from anisos, Greek, unequal, dissimilar, and dorsum, Latin, back, and refers to the finer middorsal opisthosomal annuli microtuberculation.

References