

SHORT NOTE [NOTA CORTA]

PARASITIC MITES IN BACKYARD TURKEYS

[ÁCAROS PARÁSITOS EN GUAJOLOTES DE TRASPATIO]

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ABSTRACT

The aim of the study was to know and describe the parasitic mites in backyard turkeys. The mites were obtained by hand from 30 backyard turkeys in Oaxaca's Coast region, Mexico; the mites were mount in adhesive paper and wash with the 200X lens in a computer optical microscopy, the parasites size was determine in the pictures obtained by the microscopy software, the images were sized using a specialist software, which relate the number of pixels in the picture with the size of the observation field. The species indentified were *Dermanyssus gallinae*, *Megninia ginglymura* and *Ornithonyssus sylviarum*, the last two described for first time in backyard turkeys in Mexico.

Key words: *Dermanyssus gallinae*; guajolotes; *Megninia ginglymura*; *Ornithonyssus sylviarum*.

RESUMEN

El presente trabajo se realizó con la finalidad de describir los ácaros parásitos de los guajolotes de traspatio. Se obtuvieron manualmente ácaros de 30 guajolotes de traspatio en la región costa de Oaxaca, México; se montaron en papel adhesivo y se observaron con la lente 200X en un microscopio óptico para computadora, el tamaño de los parásitos se determinó a partir de las fotografías obtenidas con el software del microscopio, las imágenes fueron medidas utilizando un software especializado para ello que relaciona el número de píxeles en la imagen con el tamaño del campo observado. Se identificaron las especies *Dermanyssus gallinae*, *Megninia ginglymura* y *Ornithonyssus sylviarum*, las dos últimas descritas por primera vez en guajolotes de traspatio en México.

Palabras clave: *Dermanyssus gallinae*; *Megninia ginglymura*; *Ornithonyssus sylviarum*; pavos.

INTRODUCTION

Mites are between the principal external parasites that affect the aviculture (Arends, 2003); infested poult, wild birds, farm workers and equipment are frequently the infestation source (Axtell, 1999). Nevertheless, in Mexico the backyard turkey's mites have been studied scarcely. The turkey (*Meleagris gallopavo gallopavo*) is a domestic fowl which traditionally is breeding in backyard, were frequently grazing during the day and sleep near the owner's house (Camacho-Escobar *et al.*, 2008a), this situation turns out into a great risk due to a great number of pathogens and parasites (Camacho-Escobar *et al.*, 2008b). Recently has been reported the

presence of *Pterolichus obtusus* (Quintero, 1993) and *Dermanyssus gallinae* (Camacho-Escobar *et al.*, 2009a) in backyard. The objective of this work was to identify the parasite mites in the backyard turkeys in Oaxaca's coast.

MATERIALS AND METHODS

Mites were obtained from 30 backyard turkeys, examined during July and August of 2008 in San José Manialtepec, Tututepec Santa María Cortijo, Puerto Escondido, Mixtepec, Río Grande, Tututepec and La Soledad, Tututepec; in Oaxaca's Coast Region, Mexico, between the coordinates 16° 45' latitude north

and 96° 20' longitude east. The turkeys were breeding in the poultry house of the Universidad del Mar experimental camp. Mites were obtained from a sanitary routine monitory inspection at turkeys arrive to the university facilities. That individual inspection was to identify presence of signs, injuries, parasites, or any other sign of morbid manifestation. The parasites were collected by hand from the dorsal region and under the wings, then it were posted in adhesive paper, for its posterior direct observation with a computer optical microscopy, brand Digital Blue® model QX5® with the 200X lens; there were obtained pictures by the microscopy's software (Camacho-Escobar *et al.*, 2009b).

Them, using the Screen Calipers Ver. 4.0 software (Iconicos, 2006) and mites dimensions were calculated, from the picture pixel's number related with a know measure proportionate by the microscopy. For the mites identification specialized texts identification keys (Greiner, 1994; Hall, 1985; Mehlhorn y Piekarski, 1989; Mullen y Oconnor, 2002) were used.

RESULTS AND DISCUSSION

Mite *Megninia ginglymura*, Megnin 1877 (Arthropoda, Arachnida, Acari, Astigmata, Analgidae) was identify, also known as feather mite (Figure 1). One specimen was collected. Its dimensions were 513 µm long and 247 µm wide. It was observed a male with the characteristic develop in the third pair of legs, tarsus like spine in the two first pairs of legs, like the one reported by Santa Cruz *et al.* (2008).

The *Menignia* genus mites that affect the feathers of different species of domestic and wild birds, were reported in technical and backyard commercial layers farms in diverse countries around the word like Argentina, Israel, Sweden, Cuba, Brazil and USA (González *et al.*, 2003; Janson *et al.*, 2004; Payne *et al.*, 1990; Rosen *et al.*, 1998; Santa Cruz *et al.*, 2008; Tucci *et al.*, 2005), causing feather loses, skin irritation, head, neck and dorsal region lesions, nervousness, pruritus and 10-20% egg production losses (Rosen *et al.*, 1998; Tucci *et al.*, 2005; Santa Cruz *et al.*, 2008), could be the principal parasite in the commercial farms.

Hypothetically this mite comes from the wild turkey, and with domestication and later distribution around the world, passed to other avian species (Gaud *et al.*, 1985). This is the first report of *Megninia ginglymura* in Mexico's backyard turkeys.



Figure 1. Feather mite *Megninia ginglymura*, Megnin 1877 (Arthropoda, Arachnida, Acari, Astigmata, Analgidae), from back yard turkeys in the Oaxaca's Mexico, coast; *In vivo* observation by computer optical microscopy with 200X lens.

The northern poultry mite *Ornithonyssus sylviarum*, Canestrini and Fanzago 1877 (Arthropoda, Arachnida, Acari, Mesostigmata, Macronyssidae), was identify by computer optical microscopy (Figure 2). Two specimens were collected, but just one can be measured. Its dimensions were 632 µm long and 327 µm wide. It is visible that the chelicerae and the scabbard's chelicerae (oral parts) are prominent; this is a characteristic of this specie (Greiner, 1994). This specie is bloodsucker and can parasite other animal species including humans (Calderón-Arguedas *et al.*, 2004). *Ornithonyssus sylviarum* are the most common and disseminated species on poultry (Axtell, 1999) and its very difficult to eradicated of poultry farms (Kells y Surgeoner, 1997), in Mexico it was reported in nest of barn swallow (*Hirundo rustica*), black-headed grosbeak (*Phencticus melanocephalus*), russet nightingale-thrush (*Catharus occidentalis*); its consider a frequent parasitic in wild birds (Axtell, 1999; Garvin *et al.*, 2004) like the american robin (*Turdus migratorius*) (Estébanez-González, 1997). Because the backyard turkeys in Oaxaca's Coast has been free in cultivate lands and other areas of waste lands, it is not odd that pathologies and parasitic from domestic poultry and wildlife birds were present in the turkeys. (Camacho-Escobar *et al.*, 2009a). The genus *Ornithonyssus* mites are distributed around all bird body (Santos-Protozo *et al.*, 2003) and are the mite genus witch more frequency are related with human dermatitis (Calderón-Arguedas *et al.*, 2004), that is because their capacity to translate to non infested places by equipment, people or vectors (Mullens *et al.*,

2001) making this parasite a potential danger to public health. This specie has a complete life cycle on the bird body, and can last at least five days (Axtell, 1999). This is the first report of *Ornithonyssus sylviarum* in Mexican backyard turkeys.



Figure 2. Northern fowl mite *Ornithonyssus sylviarum*, Canestrini and Fanzago 1877 (Arthropoda, Arachnida, Acari, Mesostigmata, Macronyssidae), from back yard turkeys in the Oaxaca's Mexico, coast; *In vivo* observation by computer optical microscopy with 200X lens.

Dermanyssus gallinae, De Geer 1778 (Arthropoda, Arachnida, Acari, Mesostigmata, Dermanyssidae) known as avian red mite, was collected too in backyard turkeys, posted *in vivo* with post paper and identify with computer optic microscopy (Figure 3). The size of the unique specimen studied was 341 μm long and 178 μm wide. Of this specie are distinctive the large cheliceraes with whip form (Hall, 1985). The distribution of this mite can be by contact with other infested birds or with wild birds (Axtell, 1999). This parasite is bloodsucker and it is one of the principal external parasites of the commercial poultry (Höglund *et al.*, 1995, Yazwinski *et al.*, 2005) and it was identify on backyard layers too (Hernández-Divers *et al.*, 2006); but frequently is reported on wild birds, because it is a common parasite (Garvin *et al.*, 2004). This mite specie could be Saint Louis encephalitis vector (Smith *et al.*, 1944) and for *Erysipelothrix rhusiopathiae* etiological agent of avian erysipelas (Chirico *et al.*, 2003); it was related like vector that contribute with the east equine encephalitis virus too (Garvin *et al.*, 2004). This mite is frequently found in poultry farms (González *et al.*, 2003; Jansson *et al.*, 2004) and it is very difficult to eradicate because in their life cycle, they are on the bird only during the night, the rest of the day are in the floor or in other places (Axtell, 1999). In Mexico it was reported on

backyard turkeys (Camacho-Escobar *et al.*, 2009a) and barn swallow (Estébanez-González, 1997).



Figure 3. Poultry red mite *Dermanyssus gallinae*, De Geer 1778 (Arthropoda, Arachnida, Acari, Mesostigmata, Dermanyssidae), from back yard turkeys in the Oaxaca's Mexico, coast; *In vivo* observation by computer optical microscopy with 200X lens.

In general, there are few reports about mites that affect poultry in Mexico, it was reported the presence of *Pterolichus obtusus* on backyard turkeys in Tabasco state (Quintero, 1993), and *Dermanyssus gallinae* like parasite on backyard turkey in Oaxaca's Coast (Camacho-Escobar *et al.*, 2009a); in Yucatan state were reported on birds pets infested by mites of the genus *Knemidocoptes* and *Cytodites* (Domínguez *et al.*, 1993).

CONCLUSIONS

It is reported by first time the presence of the mites *Megninia ginglymura* and *Ornithonyssus sylviarum* on backyard turkeys in Mexico, and confirm the presence of *Dermanyssus gallinae*.

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