DOMESTIC ACARINA OF COLOMBIA : OCCURRENCE AND DISTRIBUTION OF ACARI IN HOUSE DUST [1]

BY

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ABSTRACT

The distribution and occurrence of mites collected from house dust in various climatic and altitudinal zones of Colombia were investigated. The most abundant mites collected were those of the family Pyroglyphidae, certain species of which have been shown to be producers of allergens. The families Acaridae, Glycyphagidae, Cheyletidae, and Chortoglyphidae were also common in the house dust. A majority of samples yielded more than 10 mites per ml of house dust. Sites with mite loads of 1 000 or more per ml were situated above 1 400 meters in elevation. Detailed discussion is presented on the species of pyroglyphids, chortoglyphids, and cheyletids recovered from the house dust samples.

RESUMEN

Se investigó la distribución y ocurrencia de ácaros recogidos de polvo de habitaciones en distintas zonas, en diferentes climas y alturas de Colombia. La gran abundancia de ácaros recogidos eran los de familia Pyroglyphidae, ciertas especies del cual se han mostrado como productores de los alergenos. Las familias Acaridae, Glycyphagidae, Cheyletidae, y Chortoglyphidae también eran comunes en el polvo de habitaciones. La mayoría de las muestras produjo más de diez ácaros por ml de polvo de habitaciones. Los sitios de mil o más de mil ácaros por ml estaban situados en lugares de altura de más de 1 400 metros Se presenta una discusión detallada sobre las especies de pyroglyphids, chortoglyphids, y cheyletids recogidos de las muestras de polvo de habitaciones.

INTRODUCTION

With the discovery that mites of the family Pyroglyphidae are producers of allergens causing asthma and rhinitis in house dust sensitive individuals (VOORHORST et al., 1967, 1969), many studies have been recently devoted to the acarine fauna of human habitations, especially those occurring in house dust. A recent review of house dust mites is given by WHARTON (1976). Surveys of mite populations have been reported from many countries of the world : Japan (OSHIMA, 1970) ; New Zealand (CORNERE, 1970) ; United States (MITCHELL, et al., 1969) ; England (MAUN-

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SELL, et al., 1968) ; Scotland (SESAY and DOBSON, 1972) ; France (GRIDELET and LEBRUN, 1973) ; and the Netherlands (SPIEKSMA and SPIEKSMA-BOEZMAN, 1967).

Although in these studies a variety of acarine families were found in the house-dust of human dwellings, the most numerous mites in this niche, however, were members of the family Pyroglyphidae. The families Acaridae, Glycyphagidae, Cheyletidae, and Chortoglyphidae were also found in house dust samples.

Little or no detailed studies have been carried on domestic Acari in South America. SANCHEZ-MEDINA and SANCHEZ-GUTIERREZ (1973) in Colombia, investigated mites occurring in house dust of homes in different parts of that country. The purpose of the present studies was to research the distribution and occurrence of mites in various climatic and altitudinal zones of Colombia. Information on the possible associations of different families and species of mites recovered from house dust samples is also presented.

MATERIALS AND METHODS

Fifty-seven house dust samples were collected from various regions in Colombia, South America, during the spring and summer of 1973. The samples were taken from under the beds of homes in 57 cities and towns (one sample of house dust per site). These locations represented areas of diverse climates and altitudes. Each sample was labeled and preserved in 65 % ethyl alcohol.

The house dust samples were processed according to the large volume alcohol washing technique (FURUMIZO, 1975 *a*). This method, in brief, consists of washing the dust preserved in 65 percent ethyl alcohol through a series of 3 sieves (840, 420, and 75 μ openings). The mites and fine particles are retained on the 75 μ sieve and this material was washed into screw-top bottles with 65 percent ethyl alcohol from a wash bottle. These samples, preserved in alcohol, were labeled and shipped to the University of California, Riverside, for examination and analysis.

The contents of the bottles were poured through a 44 μ sieve and the residue on the screen washed with a stream of alcohol from a wash bottle into a graduated cylinder. The amount of material in the cylinder, after settling for 4 hrs, was measured to the nearest 0.1 ml and the contents then poured into a divided plastic sorting tray. The number of total mites in the sample was determined by counting the dust suspension under a dissecting microscope at 18 ×. When samples were large (> 2 ml), a splitter-funnel device (FURUMIZO, 1975 *a*) was used to reduce the suspension to small aliquots for examination. In small samples all, and in large samples a representative number of mites were mounted in Hoyer's medium. Identification to family was made under phase contrast. Representative slides of the acarine material recovered were sent to various authorities for determination or confirmation of species identification.

RESULTS AND DISCUSSION

Most of the house dust samples in Colombia came from populated areas. The eastern and western portions of the country on each side of the concentrated sampling sites are sparsely populated. The portion lying east of the Andes forms a part of the Amazon rain forest and is not inhabited. The temperature in the various parts of the country varies from a mean of 13°C to over 30°C. Since Colombia is situated along the equator, these differences are mostly due to the altitude.

The most abundant mite families recovered in the house dust samples are shown in Table 1. Of the 57 samples, only 14 contained less than 10 mites per ml of sieved alcohol suspended-settled dust. Some samples yielded as many as 1 000 or more mites per ml of house dust, indicating the presence of unusually high populations of acarine fauna. These high mite populations, in close association with man, undoubtedly play a role in the incidence of house dust allergies in the population. Members of the family Pyroglyphidae, especially *Dermatophagoides* spp., incriminated as the cause of bronchial asthma and other respiratory diseases, occurred in most of the sites.

TABLE 1. — Occurrence of various mite groups in house dust samples collected in Colombia, South America (1973) *a*.

Locality by State	Altitude (m)	Mite groups recovered *b*)						Total no. mites/ml dust
		Pyro	Chey	Gly	Chort	Acar	Ori	
Antioguia								
Concepcion	500				+			100
Bolivar								
El Carmen	150							0
Boyaca								
Chinavita	1 800		+	+		+		214
Garagoa	1 800	+	+	+	+	+	+	2 375
Rio Negro Sur	1 400		+	+	+	+	+	612
Soata	1 700	+			+		+	39
Tenza	1 700	+	+	+		+		1 000
Tibana	2 400			+		+		45
Tipacoque	1 400	+	+	+				14
Cordoba								
Monteria	25	+	+	+			+	8
Sahagun	60			+		+		7
Cundinamarca								
Arbelaez	1 470						+	7
La Calera	3 000	+	+	+	+		+	229
Catatumbo	2 600		+	+			+	82
Chicoral	430							0
Choconta	2 800	+	+	+	+	+		2 631
Nayas	1 850		+	+	+			10
Pasca	2 300	+				+		7
Sabanilla	3 000	+				+	+	130
Ubatoque	2 500	+	+		+			22
Guajira								
Carretalito	280							0
Distraccion	250	+					+	6
Hatico	252							0
Huila								
Capa Rosa	1 500		+	+		+	+	57
Isnos Cienaga Chiquita	1 700						+	100
Pitalito Meson	1 400	+	+	+	+		+	673

Locality by State	Altitude (m)	Mite groups recovered *b*)						Total no. mites/ml dust
		Pyro	Chey	Gly	Chort	Acar	Ori	
San Ciro	1 370	+	+	+	+	+	+	186
Timana Pantanos	1 150				+			529
Viso Elias	1 400	+	+	+	+			2 424
Magdalena								
Apure	17		+	+		+	+	33
Chibolo	16		+				+	39
Plato	15		+					2
Tenerife	17	+	+	+	+		+	178
Meta								
Cumaral	450	+	+	+				80
Fuente De Oro	450		+	+		+		13
Granada	420		+	+			+	13
Guacavia	500							0
Morrocoy	60			+	+		+	50
San Martin	400	+					+	3
S. J. De Arama	450	+				+		6
Vista Hermosa	470		+	+	+			254
Narino								
Guaitarilla	2 900			+		+	+	53
Obonuco	2 700			+				2 111
Ospina	2 800		+	+	+		+	221
Sapuyes	3 000		+	+	+			6
Tuquerres	3 150	+	+	+		+	+	119
Norte de Santander								
Ocaña	1 200	+	+	+			+	220
Santander								
Charta	2 000	+	+	+		+		288
Piedecuesta	1 300		+	+			+	36
Surata	1 600	+	+	+	+	+	+	115
Sucre								
Granada	17	+	+	+			+	85
Sincelejo	1 200		+	+				424
Tolima								
Espinal	430	+	+	+			+	15
Guamo	400	+	+	+				179
Valle								
Cerrito	1 000		+	+		+	+	26
Guacari	800	+	+	+	+			183
Rio Frio	750	+	+	+	+			68

a) Based on an analysis of 57 samples.

b) Pyroglyphidae ; Cneyletidae ; Glycyphagidae ; Chortoglyphidae, *Chortoglyphus arcuatus* (Troupeau) ; Acaridae ; Oribatei (misc. families).

It is significant to note that the locations where mite densities of 1 000 or more per ml were detected, are all areas of relatively high altitude (> 1 400 meters). This is in contrast to data reported by SPIEKSMA, et al. (1971) for the high mountainous areas of Switzerland (1 200-1 600 meters), where low numbers were recovered due to the cold temperatures resulting in low humidities inside the homes. In Colombia, the altitudes of the sampling sites are greater, but the temperatures are higher and the humidity prevails at higher levels due to the close proximity to the equator and heavy rainfall.

It is apparent from Table 1 that the families Cheyletidae and Glycyphagidae were the most common collected, being found in 65 % and 68 % of the locations sampled, respectively. The Pyroglyphidae were recovered from about one-half of the areas and the Acaridae and Chortoglyphidae, 33 % and 35 %, respectively. It should be noted, however, this relationship could change, if an intensive sampling scheme is undertaken. The data, however, indicate the relative abundance of these families in the house dust samples in these areas and altitudes in Colombia. Of the 57 locations, 5 yielded no Acari, but with more collecting this trend would probably not hold.

ASTIGMATA

Family PYROGLYPHIDAE Cunliffe, 1958

Members of this family, which are shown to be allergenic, were recovered from about 50 % of the sites sampled. The distribution of the locations positive for these mites is shown in Figure 1. As can be seen, this family of Acari is found throughout the sampled areas. The collections were composed of 7 species in 5 different genera. The most prevalent mite, both in numbers and positive locations, was *Dermatophagoides pteronyssinus* (Trouessart).

The relationship of altitude to pyroglyphids shows some interesting trends. Based on the number of samples and the area scrutinized, it is evident that there is a negative correlation between altitude and the occurrence of these mites in house dust (Figure 2). With the exception of the 500-1 000 meter range, this relationship generally held true for all sites sampled. Due to the availability of small numbers of samples for this altitude, the general trend observed for the other altitudes was not noted. It is possible that further collecting will substantiate the trend for this elevation range as well.

The 7 species of the family Pyroglyphidae that were collected from house dust throughout Colombia are discussed below. The names in capital letters under new records in the following discussion are the major civil subdivisions of this country.

Dermatophagoides pteronyssinus (Trouessart, 1897)

New Records : BOYACA : Garagoa ; Soata ; and Tenza. CORDOBA : Monteria. CUNDINAMARCA La Calera ; Choconta ; Pasca ; Sabanilla ; and Ubatoque. GUAJIRA : Distraccion. HUILA : Pitalito Meson ; San Ciro ; and Viso Elias. MAGDALENA : Tenerife. META : Cumaral and S. J. de Arama. NARINO : Turquerres. NORTE DE SANTANDER : Ocana. SANTANDER : Charta and Surata. SUCRE : Granada. TOLIMA : Espinal and Guamo. VALLE : Guacari and Rio Frio.

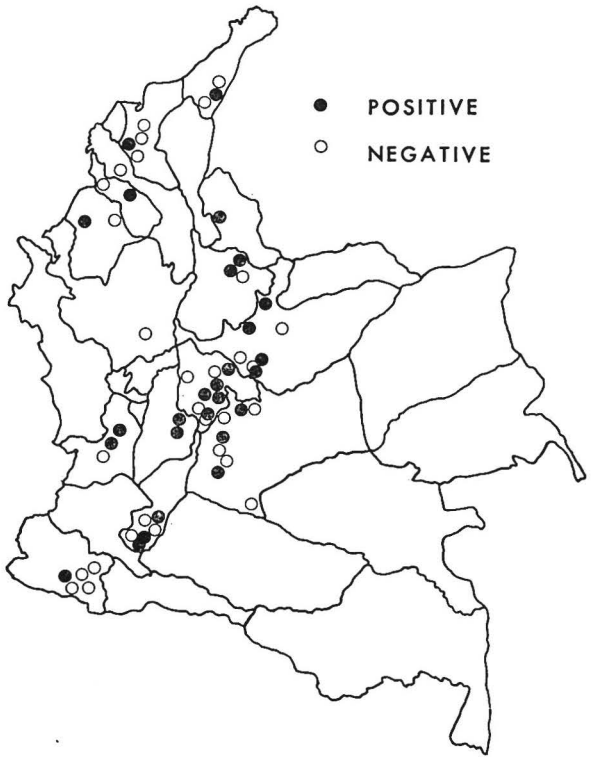

FIG. 1. — Geographical distribution of pyroglyphid mites as recovered from house dust samples in Colombia. (Boundaries refer to major civil subdivisions).

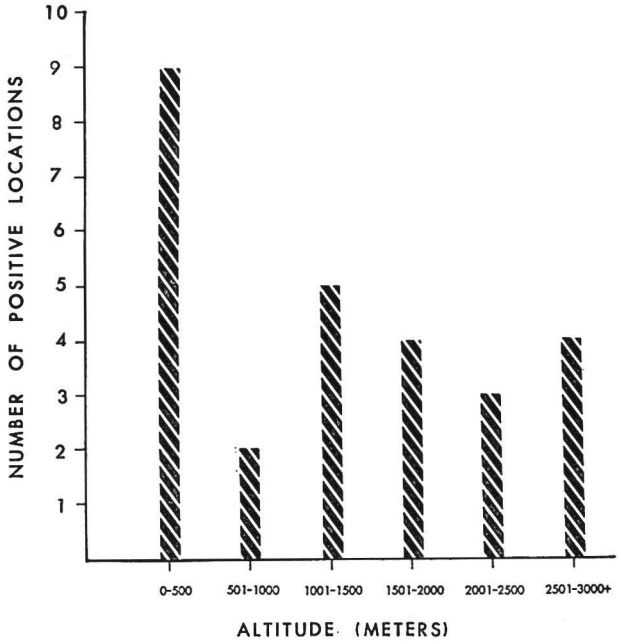

FIG. 2. — Number of sampling locations positive for pyroglyphids at various altitude ranges in Colombia.

This mite which is cosmopolitan in distribution (BRONSWIJK and SINHA, 1971) was the most common member of this family collected. In the 27 locations positive for this family, *Dermatophagoides pteronyssinus* was prevalent in 25. It was recovered in house dust samples from homes as low as 17 meters (Granada and Tenerife) to one at 3 150 meters in Tuquerres. Dr. Alex FAIN (pers. comm.) mentioned recovering this species from altitudes up to 3 000 meters in Peru. The locations ranged from the northern most region of Colombia to the south, near the border of Ecuador. *D. pteronyssinus* was the only pyroglyphid that was not collected with others of the same family in some of the samples. All the other species were recovered with at least one different species.

Dermatophagoides farinae Hughes, 1961

New Records : BOYACA : Tipacoque. META : Cumaral. NORTE DE SANTANDER : Ocana.

This mite was the second most common pyroglyphid recovered though only from 3 locations in the north-central part of Colombia. *Dermatophagoides farinae*, like *D. pteronyssinus*, has been implicated as being responsible for producing house dust allergy in humans and is cosmopolitan in distribution. WHARTON (1976), in his review of house dust mites, stated that this was the commonest mite in North America. However, FURUMIZO (1975 *b*) reported it to be second to *D. pteronyssinus* in California. *D. farinae* probably is the least ecologically specialized of the species in this family. It was recorded from mid altitudes of 450-1 400 meters, though further sampling might yield individuals from lower as well as higher elevations. It was recovered with the following species : *D. pteronyssinus*, *Hirstia domicola*, *Euroglypus maynei*, and *Pyroglyphus africanus* in house dust samples.

Hirstia domicola Fain, Oshima, and Bronswijk, 1974

New Record : META : Cumaral.

Hirstia domicola was recovered from a single location in central Colombia at an altitude of 450 meters. This species was found in association with both *D. pteronyssinus* and *D. farinae*. Distribution records for this mite include Ohio in the United States, Japan, Thailand, and Surinam, where the mite is apparently restricted to house-dust. However, the other species in this genus, *Hirstia chelidonis* Hull, is found living in nests of swallows, swifts and sparrows (FAIN, et al. 1974).

Malayoglyphus carmelitus Spieksma, 1973

New Records : TOLIMA : Espinal and Guamo.

This pyroglyphid, until now, has only been known from Israel (SPIEKSMA, 1973) and Spain (BLASCO and PORTUS, 1973). *Malayoglyphus carmeltius* was recovered in 2 samples from the central part of Colombia at approximately the same altitude in both cities (400 meters). In these samples, only *D. pteronyssinus* was recovered with *M. carmelitus*.

Malayoglyphus intermedius Fain, Cunnington and Spieksma, 1969

New Record : VALLE : Guacari.

Malayoglyphus intermedius, which was the type for the genus, was collected near the Pacific coast, in the southern part of Colombia at an altitude of 800 meters. Like *M. carmeltius*, this mite was likewise recovered in the same sample with *D. pteronyssinus*. *M. intermedius* is reported in house dust from : Surinam, Singapore, Djakarta, and South Africa (FAIN, et al., 1969) and Spain (del REY CALERO and BARRIONUEVU, 1973).

Pyroglyphus (*Hughesiella*) *africanus* (Hughes, 1954)

New Records : BOYACA : Soata and Tipacoque.

This mite was collected from 2 locations in the central region of Colombia at altitudes of 1 400 and 1 700 meters. In the house dust sample from Soata, *P. africanus* was found with *D. pteronyssinus* and in the Tipacoque collection with both *D. farinae* and *Euroglyphus maynei* (Cooreman). Until now, this pyroglyphid had only been reported from Angola in Africa, infesting fishmeal in warehouses (HUGHES, 1954).

Euroglyphus (*Euroglyphus*) *maynei* (Cooreman, 1950)

New Records : BOYACA : Tipacoque. SANTANDER : Surata.

This last species of the family Pyroglyphidae recovered has a cosmopolitan distribution as, do the 2 species of *Dermatophagoides*. It is found in house dust and stored products (BRONSWIJK and SINHA, 1971). The two locations positive for *Euroglyphus maynei* were at elevations of 1 400 and 1 700 meters in the northcentral part of Colombia. *E. maynei* was collected with *D. pteronyssinus* in one house dust sample and *D. farinae* and *H. domicola* in the other.

Family CHORTOGLYPHIDAE Berlese, 1897

This is a monotypic family with the only species *Chortoglyphus arcuatus* (Troupeau). This species was recovered from about one-third of the house-dust samples from Colombia (Figure 4). The sites positive for members of the family extend from 17 to 3 000 meters in elevation (Table 1).

Chortoglyphus arcuatus (Troupeau, 1874)

Distribution : Cosmopolitan.

New Records : ANTIOQUIA : Concepcion. BOYACA : Garagoa, Rio Negro Sur, and Soata. CUNDINAMARCA : La Calera ; Choconta ; Nayas ; and Ubatoque. HUILA : Pitalito Meson ; San Ciro ; Timana Pantanos ; and Viso Elias. MAGDALENA : Tenerife. META : Morrocoy and Vista Hermosa. NARINO : Ospina and Sapuyes. SANTANDER : Surata. VALLE : Guacari and Rio Frio.

HUGHES (1961) reported this species collected from the following items : floor, old straw, wheat, rye, oats and grass seed. In a survey of mites in poultry litter, RONALD and ENNS (1971) reported *C. arcuatus* to constitute a significant part of the acarine fauna. Studies of mites in house dust in both Spain and Finland yielded individuals of this species (del REY CALERO and BARRIONUEVO, 1973 ; STENIUS and CUNNINGTON, 1972).

PROSTIGMATA

Family CHEYLETIDAE Leach, 1815

This family which is comprised mainly of free-living predators, was a common component of the mite fauna recovered from house dust in Colombia. Next to the glycyphagids, the cheyletids were the most frequently collected family, and the pyroglyphids third. The distribution of the samples positive for this family is shown in Figure 3. As the Pyroglyphidae, these mites were collected throughout the inhabited areas of Colombia (coastal to inland) and ranged in altitude from 50 to over 3 100 meters. This broad range of distribution at various elevations indicates that these mites have tolerance to extreme temperatures, since at low elevations, the conditions are very hot (mean temperatures of 30°C) with relative humidities approaching 100 %, and the higher mountainous areas the temperatures drop to means of 13°C and lower. The temperature in homes is influenced by the external environment, as cooling and heating systems in homes in Colombia are rare.

The cheyletids have been collected in house dust samples throughout the world, usually associated with species of house dust mites (Pyroglyphidae). BRONSWIJK et al. (1971), suggested that *Cheyletus* mites are (of which 3 species were collected in this study) the most abundant among the possible predators of *Dermatophagoides* in the house-dust habitat. These predaceous mites have been recovered from housedust in Surinam (BRONSWIJK, 1972) ; New Guinea (ANDERSON and CUNNINGTON, 1974) ; and also from the Netherlands (BRONSWIJK, et al., 1971) ; Japan and Taiwan (OSHIMA, 1970) ; Scotland (SESAY and DOBSON, 1972) ; Czechoslovakia (SAMSINAK, et al., 1972) ; New Zealand (CORNERE, 1971) ; and Finland) STENIUS and CUNNINGTON, 1972). In most cases, the genus *Cheyletus* was listed as the sole genus recovered from the dust samples.

From our studies, it is apparent that cheyletids are abundant in house dust in Colombia and are represented by several genera and species. Dr. Francis SUMMERS, in identifying the material, remarked (pers. comm.) that such a diverse group of species found in these habitats was noteworthy. He speculated that these cheyletids may prey on house dust mites (Pyroglyphidae) but are most likely general feeders not constantly associated with house dust mites.

The species of this family that could be identified are given below, along with their reported distribution records. Many of the cheyletids were immature specimens and could not be identified to species. These are included in Table 1 and Figure 3 and a few are included in the next section where they add to the collection records.

Cheyletus eruditus (Schrank, 1781)

Distribution : Cosmopolitan.
New Record : NARINO : Ospina.

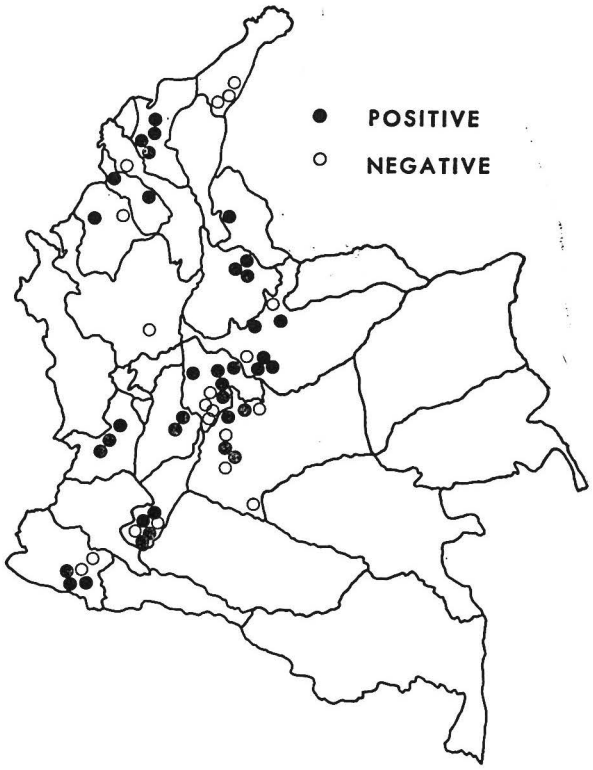

FIG. 3. — Geographical distribution of cheyletid mites as recovered from house dust samples in Colombia. (Boundaries refer to major civil subdivisions).

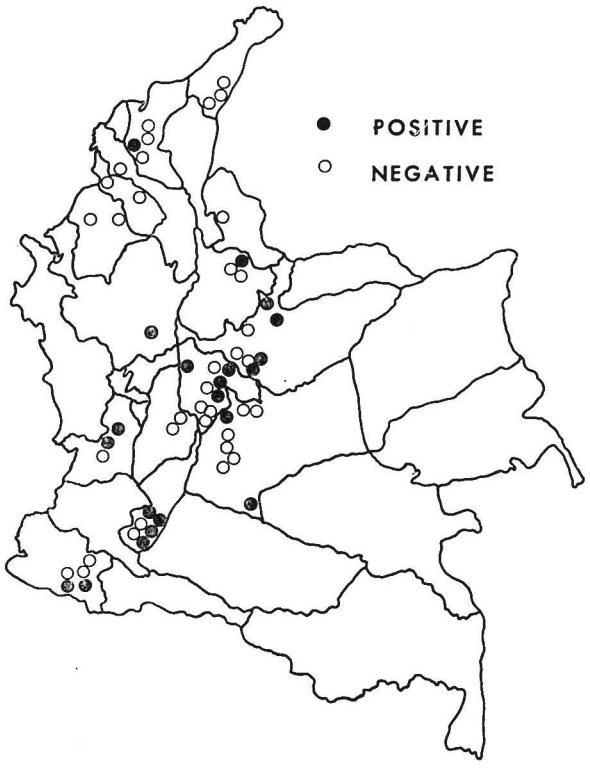

FIG. 4. — Geographical distribution of chortoglyphid mites as recovered from house dust samples in Colombia. (Boundaries refer to major civil subdivisions).

Individuals of this species have been reported in the United States from house sparrow, *Sciurus carolinensis*, hay litter, eucalyptus bark, moss, and poultry litter (BAKER, 1949 ; SUMMERS and PRICE, 1970 ; and RONALD and ENNS, 1971). WOODROFFE (1953) in his study of insects and mites in bird nests stated that the cheyletids were the only predatory mites of any great importance found in nests. He also mentioned that this mite was widely distributed in nests and especially abundant in most pigeon nests. The life history of this cheyletid was studied by EWING (1912) and BEER and DAILEY (1956). *Cheyletus eruditus* has been commonly found in stored products with acarid mites, sometimes in large enough numbers to act as a control (NORRIS, 1958 ; HUGHES, 1961 ; PULPÁN and VERNER, 1965 ; and SOLOMON, 1969). It has also been collected from house-dust samples in Denmark (HAARLØV and ALANI, 1970), Czechoslovakia (SAMSINAK et al., 1972), and Japan and Taiwan (OSHIMA, 1970). BRONSWIJK and SINHA (1971) mentioned that this mite has been shown to effectively control *Dermatophagoides pteronyssinus* at certain predator-prey ratios.

Cheyletus trouessarti Oudemans, 1903

Distribution : England, Netherlands, France, Denmark, and the United States.
New Records : CUNDINAMARCA : La Calera. HUILA : Pitalito Meson. NARINO : Turquerres.

HUGHES (1961) reported this mite to occupy the same niche as *Cheyletus eruditus* in Britain, although recovered less frequently. In California, the habitat is much wider than in England as listed by SUMMERS and PRICE (1970) : barn floor, soil, ponderosa pine bark, hay, eucalyptus bark, pine litter, and the nest of a species of *Neotoma*. HAARLØV and ALANI (1970) reported this species, in addition to *C. eruditus*, in samples of house dust from Denmark.

Cheyletus malaccenis Oudemans, 1903

Distribution : Cosmopolitan.
New Records : HUILA : Viso Elias. META : Cumaral. NORTE DE SANTANDER : Ocana. SANTANDER : Charta. VALLE : Cerrito.

The type for this species was recovered from the skin of a bird (*Psittinus cyanurus*). It probably was feeding on feather mites associated with the bird (BAKER, 1949). Many localities throughout the world where this species was collected are given by BAKER (1949), but few hosts are listed because the records were from United States Port of Entry interceptions. He does give a record for Barranquilla, Colombia, in which the mite was collected on the coffee bean weevil, *Araecerus fasciatus*, eggs. ZAHER and SOLIMAN (1967) listed *Cheyletus malaccensis* from Egypt, but do not give a habitat, RONALD and ENNS (1971) reported it from poultry litter in Delaware and Arkansas, and SUMMERS and PRICE (1970) reported it from feed trash and rodent cages in California, as well as red rice from Indonesia. HUGHES (1961) collected this mite from stored products, like the other two *Cheyletus* species, preying on acarids. It was recovered from house dust collections in Japan and Taiwan by OSHIMA (1970).

Cheyletus spp.

New Records : BOYACA : Chinavita ; Garagoa ; Rio Negro Sur ; Tenza ; and Tipacoque. CUNDINAMARCA : La Calera ; Choconta ; and Nayas. HUILA : San Ciro. MAGDALENA : Tenerife. META : Cumaral and Vista Hermosa. NARINO : Sapuyes and Turquerres. NORTE DE

SANTANDER : Ocana. SANTANDER : Charta and Surata. TOLIMA : Espinal. VALLE : Cerrito ; Guacari ; and Rio Frio.

Grallacheles bakeri DeLeon, 1962

Distribution : Japan and Florida (U.S.A.).
New Records : MAGDALENA : Apure, Chibolo, Plato, and Tenerife. META : Granada. NARINO : Sapuyes. NORTE DE SANTANDER : Ocana. SUCRE : Granada and Sincelejo. TOLIMA : Espinal.

This mite was described by DELEON (1962) from specimens collected in floor sweepings from an old house in Florida. He reported paratypes from sapote verde. MUMA (1964) also recorded this species from Florida from citrus bark and fruit. An additional habitat of *Cycas revoluta* in Japan is given by SUMMERS and PRICE (1970).

Grallacheles sp.

New Records : MAGDALENA : Chibolo. NORTE DE SANTANDER : Ocana.

Prosocheyla sp.

New Record : NARINO : Turquerres.

Prosocheyla n. sp.

New Records : CORDOBA : Monteria. CUNDINAMARCA : Catatumbo.

Acaropsella kulagini (Rohdendorf, 1940)

Distribution : USSR and California (U.S.A).
New Record : Tolima : Guamo.

The type habitat of this mite is reported to be Indian-corn grain in Russia (BAKER, 1949) and SUMMERS and PRICE (1970) listed hosts in California as grape vine bark and hay litter.

Ker bakeri Zaher and Soliman, 1967

Distribution : UAR (Egypt).
New Records : CUNDINAMARCA : La Calera. HUILA : Capa Rosa.

In their review of the cheyletids in Egypt, ZAHER and SOLIMAN (1967) described this species from bird nests and manure.

Ker sp.

New Records : META : Fuente de Oro. NARINO : Tuquerres.

Cheletomorpha sp.

New Records : BOYACA : Rio Negro Sur and Tenza.

Eutogenes n. sp. (near *E. pinicola*)

New Record : BOYACA : Chinavita.

Hemicheyletia wellsi (Baker, 1949)

Distribution : Azores, South America, Central America, Mexico, Florida, Carribean area and Okinawa.
New Record : BOYACA : Chinavita.

MUMA (1964) stated that *Paracheyletia* (= *Hemicheyletia*) *wellsi* was the most abundant and important cheyletid associated with citrus in Florida (U.S.A.). He collected specimens from the leaves, twigs, fruit, bark and in the litter under the trees. This mite was also recovered from under pine bark in association with the southern pine beetle (*Dendroctonus frontalis* Zimm.) in Louisiana (MOSER and ROTON, 1971). SUMMERS and PRICE (1970) listed the following records for South America : Argentina : soil ; Chile : under *Opuntia*, grape leaves, and Bermuda grass. The type for this species was described from individuals on navel oranges, Azores, intercepted at a United States port of entry (BAKER, 1949).

Hemicheyletia sp.

New Records : BOYACA : Chinavita. CUNDINAMARCA : Catatumbo. SANTANDER : Piedecuesta.

Eucheyletia reticulata Cunliffe, 1962

Distribution : Japan and Tahiti.
New Records : BOYACA : Rio Negro Sur. CUNDINAMARCA : Ubatoque.

CUNLIFFE (1962) reported the type from *Oryza sativa*, Tahiti, at Hawaii Quarantine and SUMMERS and PRICE (1970) list the same host, but add Japan to the distribution records.

Eucheyletia sp.

New Records : BOYACA : Chinavita and Rio Negro Sur.

Family PYEMOTIDAE Oudemans, 1937

Not shown on Table 1 are two individuals of the family Pyemotidae that were collected in house dust samples from Arbelaez and Soata. Both locations are above 1 400 meters in the central part of Colombia. These two females are presently placed in the genus *Pediculaster*, but are most probably really phoretic female morphs of a species of *Siteroftes* (Cross, pers. com. and Moser and Cross, 1975).

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