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SOME NEW RECORDS OF MITES (ACARI) FROM BANGLADESH

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INTRODUCTION

The published reports on mite fauna of Bangladesh in general and that on fruit trees and ornamental plants in particular are scanty though it is a fact that due to rich floral wealth of the country, the mite fauna is also likely to be rich there. One of the authors (MZRM), while examining various plants, flowers, etc. sent to him for routine examination in connection with quarantine purpose, collected a good number of mites from such habitat and the present paper is based upon those material. It reports a total of 12 species belonging to 9 families and 12 genera under 4 orders and all appear to be new records from Bangladesh.

SYSTEMATIC ACCOUNT

Order I. PROSTIGMATA

Family 1. TETRANYCHIDAE Donnadieu, 1875

1. *Eutetranychus orientalis* (Klein)

1936. *Anychus orientalis* Klein, *Agric. Res. Stn. Rehovoth*, **21** : 3.
1960. *Eutetranychus orientalis*; Baker & Pritchard, *Hilgardia*, **29** : 464-467.

Material examined : 5 females, Bangladesh, Dhaka, Savar, ex rotten rose (*Rosa centrifolia* Linn.) leaf, 18.5.1996.

Distribution : Bangladesh (Dhaka). Elsewhere : India, Pakistan, Tiwan, Israel, Turkey, Jordan, Afghanistan, Cyprus, South Africa, East Transvaal.

Remarks : This species is recorded for the first time from Bangladesh. It is a serious pest of a number of fruit trees and ornamental plants throughout the world of which citrus is the most

important on which it causes substantial damage. All the previous records of this species were from leaves of various plants (Gupta & Gupta, 1994) but not on any rotten material like rotten rose leaf, as has been recorded here.

2. *Oligonychus biharensis* (Hirst)

1925. *Paratetranychus biharensis* Hirst, *Bull. zoll. Soc. Lond.*, p. 69.

1955. *Oligonychus biharensis*; Pritchard & Baker, *Pacific Coast Ent. Soc. Mem. Ser.*, **2** : 364-365.

Material examined : 6 females, Bangladesh, Dhaka, Savar, ex rose (*Rosa centrifolia* Linn.) leaf, 22.6.1993.

Distribution : Bangladesh (Dhaka). Elsewhere : India, Philippines, Mauritius, Hawaii, Brazil, Antigua.

Remarks : Earlier this species has been recorded from a number of plants including rose (Gupta, 1985) but its record in Bangladesh was hitherto unknown.

3. *Tetranychus urticae* Koch

1836. *Tetranychus urticae* Koch, *Deu. Crust. Myr. Arch. Fasc.* **1** : 10.

Material examined : Several females & males, Dhaka, Savar, ex Zinia (*Zinia elegans* Linn.) flower, 30.6.1996.

Distribution : Bangladesh (Dhaka). Elsewhere : Cosmopolitan.

Remarks : This is a polyphagous species and has been recorded earlier on over 300 host plants (Gupta, 1985; Gupta & Gupta, 1994; Meyer, 1974; Smith-Meyer, 1987). It is a serious pest of a number of vegetables, fruit trees, oilseeds, spices, pulses and ornamental plants and the damage done by this mite causes serious economic loss to the growers.

Family 2. TARSONEMIDAE Kramer, 1877

4. *Tarsonemus* sp.

Material examined: 5 females, Bangladesh, Dhaka, Savar, ex Zinia (*Zinia elegans* Linn.) flower, 19.5.1993.

Remarks : The species of this genus has so far not been recorded from Bangladesh. Due to non-availability of male specimen, the specific identity could not be determined.

Family 3. CHEYLETIDAE Leach, 1915

5. *Cheyletus malaccensis* Oudemans

1903. *Cheyletus malaccensis* Oudemans, *Ent. Ber.*, **1**(2) : 88.

Material examined : 4 females, Bangladesh, Dhaka, Savar, ex coriander (*Coriandrum sativum* Linn.) 10.5.1997.

Distribution : Bangladesh (Dhaka). Elsewhere : India, Peru, Mexico, Europe, China, Malayasia, Philippines, Japan, USA.

Remarks : Originally, this species was described from Malacca straits on skin of the bird, *Psittinus cyanurus* and also was recorded in debris of leg horn. In India, it has been recorded to feed upon eggs of *Rhizopertha* on paddy, *Michelia champaca*, guava (*Psidum guajava* Linn.) and as predator. This species also predates on *Rhizopertha* and *Togoderma* eggs (Gupta, 2002).

Family 4. CUNAXIDAE Thor, 1902

6. ***Cunaxa bambusae*** Gupta & Ghosh

1980. *Cunaxa bambusae* Gupta & Ghosh, *Rec. zool. Surv. India*, **77** : 198-199.

Material examined : 6 females, Bangladesh, Dhaka, Savar, ex rose (*Rosa centrifolia* Linn.) leaf, 22.6.1993.

Distribution : Bangladesh (Dhaka). Elsewhere : India.

Remarks : Many species of this genus are efficient predators of plant feeding mites. However, in the present case, such observation has not been made.

Order II. MESOSTIGMATA

Family 5. PARASITIDAE Oudemans, 1901

7. ***Parasitus*** sp.

Material examined : 4 females, Bangladesh, Dhaka, Savar, ex rotten gourd (*Cucurbita pepo* D.C.), 9.11.1998.

Remarks : The damaged condition of the specimens stood on the way of its specific identification.

Family 6. UROPODIDAE Berlese, 1917

8. ***Fuscuropoda marginata*** (Koch)

1839. *Notaspis marginata* Koch, In : Hughes (1976), *The mites of stored food and houses*, p. 366-368.

Material examined : 3 females, Bangladesh, Dhaka, Savar, ex rotten sweet gourd (*Cucurbita maxima* Duchesne), 7.7.1995.

Distribution : Bangladesh (Dhaka). Elsewhere : India, Holland, Germany, Yugoslovia, England.

Remarks : The occurrence of the species in rotten sweet gourd is quite obvious because of the fact that it is commonly available in rotten plant material as well as in manure. It has also been recorded in cucumber house (Hughes, 1976). It probably fed on fungi grown on rotten material.

Order III. ASTIGMATA

Family 7. SAPROGLYPHIDAE Oudemans, 1924

9. ***Calvolia*** sp.

Material examined : 1 female, Bangladesh, Dhaka, Savar, ex *D. macutin*, 15.5.1998.

Remarks : This is the first record of this genus from Bangladesh.

Family 8. ACARIDAE Leach, 1806

10. ***Rhizoglyphus robini*** Claparede

1869. *Rhizoglyphus robini* Claparede, In : Hughes, 1976, *The mites of stored food and houses*, p. 116-122.

Material examined : 6 females, Bangladesh, Dhaka, Savar, ex rotten zinger (*Zingiber officinale* Roscoe), 10.5.1997.

Distribution : Cosmopolitan.

Remarks : This mite is called the bulb mite as they commonly infest bulbs of potato (Hughes, 1976). It is also available on decaying plants. The occurrence of this mite on zinger is, therefore, nothing surprising. As per published information, it is more common on live bulbs than on decaying ones but in the present observation, the case was just the reverse. It also attacks onion, tulip, dahlia tubers, etc. in the field or in storage. The extent of damage sometimes may be serious (Gupta, 1985).

11. ***Tyrophagus putrescentiae*** (Schrank)

1781. *Acarus putrescentiae* Schrank, *Enun. Inst. Amst. Indig.*, 521.

Material examined : 5 females, Bangladesh, Dhaka, Savar, ex tuber rose (*Polyanthes tuberosa* Linn.), 7.8.1995; 7 females, Savar, ex rotten rose (*Rosa centrifolia* Linn.) leaf, 18.5.1996; 16 females, Savar, ex dried fruits, 15.10.1995; 12 females, Savar, ex nuts, 3.6.2000.

Distribution : Bangladesh (Dhaka). Elsewhere : Cosmopolitan.

Remarks : This species occurs in varied habitats but most common in laboratory fungal culture, stored food with high fat and protein content, dried eggs, ham, copra, cheese, different kinds of nuts, various kinds of seeds, banana, barley, tobaco, wheat flour, rotten flowers, etc. This is the first record of this species from Bangladesh.

Order IV. CRYPTOSTIGMATA

Family 9. AUSTRACHIPTERIIDAE Luxton, 1985

12. *Lamellobates palustris* Hammer

1958. *Lamellobates palustris* Hammer, *Biol. Skr. Dan. Vid. Selsk.*, **10**(1) : 100.

Material examined : 4 females, Bangladesh, Dhaka, Savar, ex dung beetle, 23.10.1993.

Distribution : Bangladesh (Dhaka). Elsewhere : India, Pakistan, Indonesia, Seycheles, Thailand, Tonga, Tapu Isl., Fiji, Argentina.

Remarks : This species was earlier recorded from soil, litter, dung as well as on plants but so far it was not recorded from dung beetle as phoretic association. Hence, the present habitat appears to be interesting. Hitherto this species was unrecorded from Bangladesh.

Keys to the orders, families, genera and species treated in this paper (Partly based upon Meyer *et al.*, 1973)

1. Pedipalp apotele represented by a tined seta situated near inner basal angle of tarsus, stigma situated dorsal to coxae II–IV and usually with elongated peritreme, tritosternum usually with lacineae, tectum present roofing gnathosoma ..... Mesostigmata, 4

— Apotele completely absent on pedipalp, stigma never situated dorsal to coxae II–IV 2

2. Ambulacra of legs comprising of a median claw with a prominent pre-tarsus or an associated membranous pad or a stalked sucker-like organ, chelicera invariably chelate, trichobothria never present on idiosoma, stigma and tracheae absent ..... Astigmata, 10

— Ambulacra of legs not as above, chelicerae chelate or variously modified into piercing stytels or hook-like organ, idiosoma often with trichobothria, a respiratory system usually present 3

3. Propodosomal trichobothria when present usually without conspicuous pseudostigmata, chelicerae rarely chelate, dentate, pedipalps various, often with tibia and tarsus forming thumb claw complex, tracheae when present opening by paired stigmata situated between the chelicerae or on to the dorsal surface of propodosoma and often with associated peretremes, usually weakly sclerotized mite ..... Prostigmata, 5

— One pair of propodosomal trichobothria almost invariably present and comprising piliform, barbed or clavate pseudostigmatid organ arising from conical depressions, the pseudostigmata, chelicerae typically chelata, dentate, pedipalps simple, tibia never with distal claw, tracheal system when present, opening to the exterior in the acetabular cavities of legs I and II or in the form of brachytracheae opening to the legs I and II or the pseudostigmata, idiosoma normal, well sclerotized mites ..... Cryptostigmata*

* Notogaster poronotic *i.e.* area porosae, sacculi or pori present; pteromorphae immovable, prodorsum with tutorium immovable, lamellae broad, sometimes synlamellata type, usually with 6 pairs of genital setae ..... Austrachipteriidae**

** Lamellae broad, situated close together, completely separated as far as the transversal ridge which connects the lamellae basally, anterior border of lamellae without free tips, notogastral setae situated not only along the borders but also on the middle part .... *Lamellobates****

***Other lamellar cuspides short and narrow, sensillus with long stalk, club-shaped, head beset with fine setae, notogastral setae 9 pairs, genital setae 6 pairs .... *Lamellobates palustris*

4. Hypostomal setae 2 and 3 forming a transverse row posterior to hypostomal setae I, tritosternum usually removed from coxae I ..... *Gamasina**

* Metasternal shields in the female large, flanking the anterior portion of genital shield, spermatophoral process of movable digit of male chelicera fused with the digit distally ..... *Parasitus* (*Parasitus* sp.)

— Hypostomal setae 1, 2, 3 in linear series, tritosternum usually partially or completely covered by the enlarged flattened coxae I, leg grooves usually developed ..... Uropodina*

* Tibia I with 3 dorsal seta (1-½-2-1) genu I with one anterolateral seta, femoral ridges usually present on all legs, base of tritosternum usually longer than wide and often covered by enlarged coxae I, leg depressions shallow or lacking ..... Uropodidae**

** The distal surface covered by a shield enlarged by a continuous marginal shield with smooth inner border, from it arises a number of setae which are characteristically bent at an angle near their base, but a few terminal ones, straight, pectinate .... *Fuscuropoda marginata*

5. Gnathosoma with a minute palpi lying closely appressed laterally, chelae tiny and stylet-like with 4 pairs of legs, stigma of female opening behind gnathosoma on propodosoma, male without stigma or tracheae, empodium without a membranous flap-like organ attached to claws ..... Tarsonemidae*

* Leg IV of male with distinct tibia and tarsus, their combined length being less sthan ½ of femur and less than 3 times the basal width of femur IV ..... *Tarsonemus* sp.

— Gnathosoma usually conspicuous, with large chelicerae, palpi usually well developed, rarely without 4 pairs of legs, stigma opens at base of chelicerae, empodium free, pad-like or claw-like arising from tarsus 6

6. Without palpal thumb-claw complex*

* With 2 pairs of genital suckers, the relatively long palpi turned inward distally .... Cunaxidae**

** Palp genu apically without elongate apophysis, tarsi I–IV long, slender and attenuate, without conspicuous lateral bilobed flanges terminally ..... *Cunaxa* sp.

— With a palpal thumb-claw complex, in some cases the claw may be small or obsolete, if obsolete, it is replaced by a relatively long seta 7

7. Cheliceral bases closely fused with gnathosoma and without indication of suture, peritreme usually M-shaped, may be present on gnathosoma ..... Cheyletidae*

* Setae on margins of dorsal plates acicular, fusiform or narrow, spatulate, conspicuously barbed, no fan-shaped anal setae, dorsomedian setae when present, few in number, tiny and simple in structure ..... *Cheyletus***

** Femur IV with 1 seta ..... *Cheyletus malaccensis*

— Cheliceral bases fused with each other but not with gnathosoma, having setae conspicuous; peritremes usually present on anterior portion of propodosoma*

* Tarsi I, II with specialised duplex setae, female genitalia wrinkled, stylophore relatively broad ..... Tetranychidae, 8

8. Tarsus I dorsally with a single pair of usually associated duplex setae, empodium claw-like or rudimentary*

* With 2 pairs of anal setae ..... *Eutetranychus***

** 3rd and 4th dorsocentral hysterosomal setae forming a square .... *Eutetranychus orientalis*

— Tarsus I dorsally with 2 pairs of closely associated duplex setae, empodium claw-like or splits distally 9

9. Empodium claw-like with proximoventral hairs, duplex setae on tarsus I distal and approximate ..... *Oligonychus**

* Tarsi I with 3 pairs of proximoventral hairs on empodium ..... *Oligonychus indicus*

— Empodium splits distally usually into 3 pairs of hairs, duplex setae on tarsus I well separated ..... *Tetranychus*, (*Tetranychus* sp.)

10. Claw attached to apex of tarsus by a pair of short, thick condylophores; with claw and condylophores surrounded by a short cushion-like pulvillus, which is broadly attached to the tarsus, propodosoma and hysterosoma separated by a sejugal furrow; female genital opening without a paragenital sclerite ..... Acaridae, 11

— Claw free in pulvillus and condylophores absent or claw attached to a pair or long, thin condylophores, pulvillus also elongated but still broadly attached to tarsus*

* Body setae fine, hair-like, mostly quite long, never strongly pectinate or foliate, nor with forked or truncated ends; sejugal furrow always present; female genital opening very large, usually between coxae III and IV; cuticle transparent, finely striated of delicate membranous consistency, never bearing papillae ..... Saproglyphidae (*Calvolia* sp.)

11. Opisthosoma with long whip-like setae ..... *Tyrophagus**

    * Supracoxal setae expanded bearing fairly long pectinations, supporting arms of penis point outwards, penis curved twice like a coffee spot spout ..... *Tyrophagus putrescentiae*

— Opisthosoma without such setae ..... *Rhizoglyphus**

    * Setae sc i represented by microsetae, shorter than the supracoxal setae .... *Rhizoglyphus robini*

SUMMARY

The present paper deals with 12 species of mites belonging to 9 families and 12 genera under 4 orders, collected on flowering plants, spices, vegetables, etc. from Bangladesh and all of those appear to be new records from the area.

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