STATUS OF TICKS (ACARI : METASTIGMATA) OF RAJASTHAN

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INTRODUCTION

Ticks are of great medical and veterinary importance. They live as cetoparasites of vertebrates and obligatorily on the blood of mammals, reptiles and birds. Ticks surpass all other arthropods in the variety of diseases of man and domestic animals.

Although a number of tick species (108) are known from India, only 24 species have so far been reported from Rajasthan. The tick fauna of Rajasthan was first studied by Joshi (1943) who recorded *Ornithodoros savignyi* from Marwar. Later several workers (Hoogstraal and Trapido, 1963; Wattal and Srivastava, 1967; Miranpuri et al., 1975; Kaul et al., 1978; Advani and Vazirani, 1981; Miranpuri and Gill, 1983; Geeverghese and Dhanda, 1987; Frazier and Keirans, 1989 and Sanyal and De, 1996, in press) described and recorded 21 species of ticks from the state. The present study records three species as new to the state. Thus the total number of species so far known from the state stands at 24 under 9 genera (Table 1).

Recently the present authors received several tick specimens collected from different areas of Rajasthan and while going through the specimens, three species were recorded as new to the state. To record these species and to meet the need present paper is prepared. It includes a list (Table 1) of total of 24 species under 9 genera so far known from Rajasthan giving their distribution and hosts from which recorded in the state. The status of ticks also showed that two species *viz.*, Argas (Carios) indicus and *A. (Chiropteragus) wilsoni* were recorded as new to science from the state and till date they are not known from outside the state. The species *viz.*, *Ixodes vespertiliones* and *Argas reflexus hermanni* are known in India from Rajasthan only. Material presently studied are deposited in the National Zoological Collection of Zoological Survey of India, Kolkata.
Table 1: List of Ticks known from Rajasthan and their distribution in India.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Species of Ixidid tick</th>
<th>Distribution in Rajasthan</th>
<th>Host in Rajasthan</th>
<th>Distribution in other Indian states</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Amblyomma clypeolatum</td>
<td>Udaipur</td>
<td>Star Tortoise</td>
<td>Gujarat, West Bengal</td>
</tr>
<tr>
<td>2.</td>
<td>A. javanense</td>
<td>Udaipur</td>
<td>Python morulus</td>
<td>Bihar, Gujarat, Karnataka, Maharashtra, Orissa, U.P.</td>
</tr>
<tr>
<td>3.</td>
<td>Aponomma gervaisi</td>
<td>Udaipur</td>
<td>Common monitor lizard</td>
<td>Assam, Maharashtra, Manipur, Orissa, U.P., W.B.</td>
</tr>
<tr>
<td>4.</td>
<td>Boophilus microplus</td>
<td>Ganganagar</td>
<td>Cattle, Camel</td>
<td>All most all states</td>
</tr>
<tr>
<td>5.</td>
<td>Haemaphysalis indica</td>
<td>Shamghar</td>
<td>Small &amp; large mammals</td>
<td>Bihar, Gujarat, Karnataka, Orissa, W.B.</td>
</tr>
<tr>
<td>6.</td>
<td>H. kutchensis</td>
<td>Kota, Jalore, Alwar, Barmer, Pilani</td>
<td>Hare</td>
<td>Gujarat, Maharashtra</td>
</tr>
<tr>
<td>7.</td>
<td>Hyalomma antolicum anatolicum</td>
<td>Jaisalmer</td>
<td>Cattle, Camel</td>
<td>All most all states</td>
</tr>
<tr>
<td>8.</td>
<td>H. detritum</td>
<td>Alwar</td>
<td>Small mammals</td>
<td>Delhi, H.P., Haryana, J &amp; K, Maharashtra, Punjab, U.P.</td>
</tr>
<tr>
<td>9.</td>
<td>H. dromedarii</td>
<td>Jaisalmer</td>
<td>Cattle, Camel</td>
<td>Andhra Pradesh, Delhi, Gujarat, Orissa</td>
</tr>
<tr>
<td>10.</td>
<td>H. hussaini</td>
<td>Kota</td>
<td>Small &amp; large mammals</td>
<td>Cosmopolitan</td>
</tr>
<tr>
<td>11.</td>
<td>H. Kumari</td>
<td>Kota, Jalore, Sirchi</td>
<td>Small &amp; large mammals</td>
<td>Most of the states</td>
</tr>
<tr>
<td>12.</td>
<td>H. marginatum isaaci</td>
<td>Jalore, Sirchi</td>
<td>Small &amp; large mammals</td>
<td>Cosmopolitan</td>
</tr>
<tr>
<td>13.</td>
<td>Hyalomma sp.</td>
<td>Sam, Jaisalmer</td>
<td>Camel</td>
<td>–</td>
</tr>
<tr>
<td>14.</td>
<td>Rhipicephalus haemaphysaloides</td>
<td>Ganganagar</td>
<td>Small &amp; large mammals</td>
<td>Cosmopolitan</td>
</tr>
<tr>
<td>15.</td>
<td>R. ramachandrai</td>
<td>Udaipur</td>
<td>Small &amp; large mammals</td>
<td>W.B., Himachal Pradesh</td>
</tr>
<tr>
<td>16.</td>
<td>R. sanguineus</td>
<td>Alwar</td>
<td>Dog</td>
<td>Cosmopolitan</td>
</tr>
<tr>
<td>17.</td>
<td>R. turanicus</td>
<td>Pilani, Suratgarh, Ganganagar</td>
<td>Dog</td>
<td>Andhra Pradesh, Gujarat, J &amp; K, Maharashtra, T.N., W.B.</td>
</tr>
<tr>
<td>18.</td>
<td>Ixodes vespertilionis</td>
<td>Kota</td>
<td>Taphozous kacchensis</td>
<td>–</td>
</tr>
<tr>
<td>19.</td>
<td>Argas (carios) indicus</td>
<td>Jodhpur</td>
<td>Bat (Tadarida aegyptiaca thomsai)</td>
<td>–</td>
</tr>
<tr>
<td>20.</td>
<td>A. reflexus hermanni</td>
<td>Udaipur</td>
<td>Blue rock pigeon</td>
<td>–</td>
</tr>
<tr>
<td>21.</td>
<td>A. (Chiropteragus) wilsoni</td>
<td>Jhalawar</td>
<td>Bat (Rhinopoma microphyllum microphyllum)</td>
<td>–</td>
</tr>
<tr>
<td>22.</td>
<td>A. vespertilionis</td>
<td>Jodhpur</td>
<td>Bat (Pipistrella dormeri dormeri)</td>
<td>Kashmir</td>
</tr>
<tr>
<td>24.</td>
<td>Ornithodoros savignyi</td>
<td>Marwar, Jodhpur</td>
<td>Cattle</td>
<td>A.P., M.P., Maharashtra, Gujarat, Karnataka, Punjab</td>
</tr>
</tbody>
</table>
SYSTEMATIC ACCOUNT

Family I: IXODIDAE

Genus 1. *Amblyomma* Koch


1. *Amblyomma clypeolatum* Neumann


*Remark*: Only one male of the species was recorded by Frazier and Keirans (1980) from Motinagar Snake Park, Udaipur, parasitizing *Geochelone elegans*.

2. *Amblyomma javanense* (Supino)


*Remark*: This species mainly attacks wild animals but not much important as a disease carrier. The species is recorded here for the first time from Rajasthan.

Genus 2. *Aponomma* Neumann


3. *Aponomena gervaisi* (Lucas)


*Remark*: The species is reported here for the first time from Rajasthan.

Genus 3. *Boophilus* Curtice

4. *Boophilus microplus* (Canestrini)


*Remark:* The domestic and wild animals are attacked by this species of tick causing red-water fever and *anaplasmosis* to cattle and sheep.

Genus 4. *Haemaphysalis* Koch


5. *Haemaphysalis indica* Warburton


*Remark:* The species is widely distributed mainly as carnivore parasite in India.

6. *Haemaphysalis kutchensis* Hoogstraal and Trapido


*Remark:* The species was described by Hoogstraal and Trapido (1963) from Gujarat. They reported the species from the dry areas of Rajasthan.

Genus 5. *Hyalomma* Koch


7. *Hyalomma anatolicum anatolicum* Koch


*Remark:* The species is known to occur in many states of India infesting cattle, camel, donkey, goat, horse, sheep and occasionally dog.
8. *Hyalomma detritum* Schulze


*Remark*: *Hyalomma detritum* has been reported from Alwar infesting small mammal.

9. *Hyalomma dromedarii* Koch


*Remark*: The species has been recorded from other Indian states infesting buffalo, camel, cattle, goat and horse.

10. *Hyalomma hussaini* Sharif


*Remark*: The species has been known to infest mainly domestic animals.

11. *Hyalomma kumari* Sharif


*Remark*: *Hyalomma kumari* has been reported from other parts of India infesting buffalo, camel, cow, dog, goat, horse, sheep, wild goat, tiger, barking deer and Indian muntjak.

12. *Hyalomma marginatum isaaci* Sharif


*Remark*: The species has been reported from other Indian states from buffalo, cow, horse, sheep and brahminy myna. The nymph of this species carries Crimean haemorrhagic fever virus.

13. *Hyalomma* sp.

*Remark*: The species was reported from Sams, Jaisalmer by Sanyal and De (1996). The only specimen collected from camel could not be identified as a single one.

Genus 6. *Ixodes* Latreille

14. **Ixodes vespertiliones** Koch


**Remark:** *I. vespertiliones* is known only from Rajasthan state in India.

Genus 7. **Rhipicephalus** Koch


15. **Rhipicephalus haemaphysaloïdes** Supino


**Remark:** This species is known to infest varieties of small and large mammals. Sharif (1928) suspected that this species plays some role in transmission of tick typhus fever in India.

16. **Rhipicephalus ramachandrai** Dhanda, Hoogstraal and Bhat


**Remark:** This species was described from West Bengal, Himachal Pradesh and Rajasthan.

17. **Rhipicephalus sanguineus** (Latrielle)


**Remark:** The species is commonly known as dog tick. Besides dog, it infests cattle, horse, donkey, goat, wild boar, bear, fox, rat, *Felis marmorada*, *Felis viverrina* and *Canis aureus*.

18. **Rhipicephalus turanicus** Pomerantzev


**Remark:** This species is known to infest buffalo, cat, dog, donkey, goat, rat and sheep in different states in India.

Family II: ARGASIDAE

Genus 8. **Argas** Latreille

19. *Argas (Carios) indicus* Advani and Vazirani


*Remark*: A (*C*) indicus was described by Advani and Vazirani (1981) from Rajasthan. This species is still not known from outside the state.

20. *Argas persicus* (Oken)


*Remark*: This species is reported here as new to the state.

21. *Argas reflexus hermanni* Audouin


*Remark*: The species was reported by Kaul et al. (1978) from Rajasthan infesting blue rock pigeon. It is known in India from Rajasthan only.

22. *Argas (Carios) vespertilionis* (Latreille)


*Remark*: Advani and Vazirani (1981) recorded the species from Rajasthan infesting bat.

23. *Argas (Chiropteragus) wilsoni* Advani and Vazirani


*Remark*: Advani and Vazirani (1981) described the species as new to science from Rajasthan. The species is still not known from outside the state.

Genus 9. *Ornithodoros* Koch


24. *Ornithodoros savignyi* (Audouin)


*Remark*: This species is a common ectoparasite of animals in India.
SUMMARY

The studies on ticks of Rajasthan was initiated by Hoogstraal and Trapido (1963). Later Wattal and Srivastava (1967), Kaul et al. (1978), Advani and Vazirani (1981), Geeverghese and Dhanda (1987) and Frazier and Keirans (1989) described and reported ticks from different hosts and habitats like snake, monitor lizard, chelonia, cow, bat and soil and litter in Rajasthan.

A total of 24 species including 18 ixodids and 6 argasids are known from the state. Of these, two species were described as new to science from the state and till date they are not known from outside the state. Three of the total number of species are recorded here as the first record from Rajasthan.

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