Myiasis in domestic animals: new records of calyptrate Diptera

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Abstract This paper reports one case of wound myiasis by *Hemipyrellia ligurriens* (Diptera, Calliphoridae) that occurred in a goat and three cases of vaginal myiasis, five cases of cutaneous myiasis and one case of hoof myiasis in goat, buffalo and bull respectively by *Seniorwhitea reciproca* (Diptera, Sarcophagidae), for the first time in West Bengal, India.

Keywords Myiasis · Domestic animals · Calyptrate fly · *Hemipyrellia ligurriens* · *Seniorwhitea reciproca*

Introduction

The term Myiasis was first proposed by Hope (1840) to refer to diseases of human beings originating specifically with dipterous larvae. Zumpt (1965) defined Myiasis as “the infestation of live vertebrate animals with dipterous larvae, which at least for a certain period, feed on host’s dead or living tissues, liquid body substances, or ingested food”. Such invasions may be benign in effect or may result in mild to violent disturbances, even death. Different species of flies belonging to different families are involved in cases of myiasis, but flies belonging to family Calliphoridae and Sarcophagidae mostly cause traumatic and wound myiasis (Roy and Dasgupta 1982). Larvae of flies of several families feed only on diseased and dead tissues or more seriously, may involve in feeding living tissues of their hosts. Flies of several families are obligatory parasites on domestic animals. Wound myiasis is one of the

commonest and widespread clinical problems in veterinary practice in India (Chhabra and Pathak 2009). Different calyptrate flies of family Calliphoridae, Sarcophagidae are responsible for producing different types of myiasis in domestic animals in West Bengal, India. Roy and Dasgupta (1982) mentioned that *Chrysomya bezziana* is the most dangerous myiasis-producing fly in the North Bengal. Roy and Dasgupta (1971) made extensive experiment with *Hemipyrellia ligurriens* establishing the fact that the larvae of this species are able to utilize pre-existing wounds under some laboratory conditions. A case of wound myiasis in a goat was found where the larvae of *Hemipyrellia ligurriens* (Calliphoridae, Diptera) were reported to be involved. The infestation by *Hemipyrellia ligurriens* on domestic animals is very interesting and not reported before. *Seniorwhitea reciproca* (Sarcophagidae, Diptera) is a common species in West Bengal often attracted to human excrement, dead bodies of different animals and decaying organic matters. They can breed on dead molluscs, grasshoppers and lepidopterous larvae and it is recorded as parasite because the larvae feeds on the waxy secretion of Fulgorid (Hemiptera) and Noctuid (Lepidoptera) (Nandi 2002). Sinha (2009) studied the life history of *Seniorwhitea reciproca* on coastal fish *Panna microdon* (Bleeker) in laboratory conditions. A few cases of vaginal, cutaneous and hoof myiasis produced by *Seniorwhitea reciproca* was observed in goat, buffalo and bull. There was no report about the involvement of *Seniorwhitea reciproca* with any type of myiasis in vertebrates before the present observation from this region.

Materials and methods

Larvae were collected from wounds of some common domestic animals from some rural veterinary hospitals in

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different parts in West Bengal, India. The first and second instar larvae were reared on fresh chicken meat in laboratory. The mature third instar larvae collected from wound were kept directly in moist saw dust for pupation. Different larvae collected from different animals were kept in separate glass jars. The mouth of the jar was covered by cloth. The glass jars containing meat and larvae were kept in a glass made large box, having small window covered with cloth to prevent contamination by phorid flies. The mature larvae pupated in the same jar in moist saw dust. After emergence, the adult flies were identified up to species level by studying chaetotaxy and male genitalia.

Observation

In one case of wound myiasis in head (the brain also was infected later) of a goat (Fig. 1), the larvae collected and reared in laboratory, was identified as *Hemipyrellia ligurriens* (Wiedemann) (Diptera, Calliphoridae).

In three cases of vaginal myiasis in goat (Fig. 2), five cases of cutaneous myiasis in cow and buffalo, and one case of hoof myiasis in bull (Fig. 3), larvae of *Seniorwhitea reciproca* (Walker) (Diptera, Sarcophagidae) were found to be involved.

Discussion

The larvae of *Hemipyrellia ligurriens* showed parasitic behavior in some experimental conditions in laboratory (Roy and Dasgupta 1982). In the present study, the infestation by *Hemipyrellia ligurriens* on domestic animal is very interesting considering the fact of association of a scavenger species with vertebrate host. No infestation on live vertebrate body by this fly species was reported before.

Fig. 1 Wound myiasis in the head of a goat caused by *H. ligurriens* (Wiedemann) (Photograph S. K. Sinha)

Fig. 2 Vaginal myiasis in a goat caused by *S. reciproca* (Walker). (Photograph S. K. Sinha)

Fig. 3 Hoof myiasis in a bull caused by *S. reciproca* (Walker). (Photograph S. K. Sinha)

Seniorwhitea reciproca was supposed to be a scavenger fly species. They usually breed on dead animal body. The presence of *Seniorwhitea reciproca* larvae on the wound of different vertebrate animals clearly indicated that this species is habituated to breed on vertebrate wound for a long time that was not reported before. The infestation by *Hemipyrellia ligurriens* and *Seniorwhitea reciproca* is very interesting and significant to create a generic phylogeny in future.

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