Chapter 20

Study on Incidence of Parasites and Diseases of *Apis cerana* and *Apis mellifera* in Nepal

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In this study a preliminary attempt was made to investigate the occurrence of parasites and diseases of the honeybees, *Apis cerana* and *A. mellifera*, from different parts of Nepal.

Materials and Methods

Beekeeping areas within Nepal were visited to collect bee disease samples and to inspect colonies for the presence of parasites. Samples were collected from the following localities: Dhankuta, Bhojpur, Humla, Dadeldhura, Kavre, Chitwan, Rolpa, Lalitpur, Dolkha and Kathmandu. The combs were inspected for sealed and unsealed dead larvae displaced in unnatural positions in cells that had turned from white to yellow brown or dark brown. Dead larvae were taken from combs, crushed and air-dried. Bees crawling about in front of hives were killed with dilute ether and collected along with dead bees. Adult bees samples were kept in 70 % ethyl alcohol to enable diagnosis of tracheal mites. During the collection of brood, the presence of sacs within the body of larvae was noted for laboratory diagnosis. The presence of parasitic mites and wax moth were also noted.

Adult bee samples were diagnosed for nosema and amoeba diseases, and for the tracheal mite, *Acarapis woodi* (acarine disease). Brood samples were diagnosed for European Foul Brood (EFB), and Thai Sac Brood Virus (TSBV).

Results and Discussion

Results are shown in Tables 1 and 2.

None of the samples was infested with nosema or/and amoeba diseases. The absence of these diseases in *A. cerana* colonies may be because most *A. cerana* colonies are kept in log hives located in remote areas where cross-transmission of these diseases from *A. mellifera* is rare.

Adult honeybees of both species were diagnosed with *Acarapis woodi*. Among 16 colonies of *A. mellifera* from Kathmandu valley, 11 were infested. However, *A. woodi* was found in *A. cerana* only from Dadeldhura district from where the disease had been reported previously by Shrestha *et al.* (1993).

EFB disease was diagnosed in many localities. Secondary infection with *Streptococcus faecalis* was also found. During laboratory cultivation on bacteriological medium, heavily infected colonies produced small white opaque bacterial colonies within three days of incubation, and

Table 1. Field incidence and pathogens associated with honeybee colonies in Nepal

District	Hive type	Bee species	No. of colonies inspected	*Acarapis woodi*	EFB	TSBV
Dhankuta	Log hive	*A. cerana*	22	–	3	1
Bhojpur	Log hive	*A. cerana*	24	–	–	7
Humla	Log hive	*A. cerana*	54	–	4	2
Dadeldhura	Log hive	*A. cerana*	22	3	–	1
Kavre	Frame hive	*A. mellifera*	8	–	–	1
	Log hive	*A. cerana*	12	–	–	2
	Wall hive	*A. cerana*	2	–	–	–
Chitwan	Frame hive	*A. mellifera*	42	–	4	6
Rolpa	Log hive	*A. cerana*	68	–	6	5
Lalitpur	Frame hive	*A. cerana*	36	–	1	3
	Frame hive	*A. mellifera*	32	–	3	3
Dolkha	Log hive	*A. cerana*	26	–	2	2
	Frame hive	*A. cerana*	13	–	1	2
Kathmandu	Frame hive	*A. mellifera*	66	11	10	3
	Frame hive	*A. cerana*	28	–	5	5

Table 2. Presence of *Varroa jacobsoni*, *Tropilaelaps clareae* and wax moth

District	Hive type	Bee species	*Varroa jacobsoni*	*Tropilealaps clareae*	Wax moth
Dhankuta	Log hive	*A. cerana*	2	–	2
Bhojpur	Log hive	*A. cerana*	2	1	6
Humla	Log hive	*A. cerana*	2	–	5
Biratnagar	Frame hive	*A. cerana*	2	–	–
Chitwan	Frame hive	*A. mellifera*	12	4	–
Rolpa	Log hive	*A. cerana*	2	–	–
Godavari	Frame hive	*A. cerana*	2	–	–
Lalitpur	Frame hive	*A. mellifera*	16	2	–
Kathmandu	Frame hive	*A. mellifera*	36	–	–
	Frame hive	*A. cerana*	1		–

weakly infected colonies samples produced such bacterial colonies within five to eight days.

For the detection of Thai Sac Brood Virus, gel diffusion against antiserum (Bailey *et al.*, 1964) was used. The disease was diagnosed in many localities.

Only a general survey for the presence of parasitic mites, *Varroa* and *Tropilaelaps*, and wax moth was conducted.

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References

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