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PREVALENCE OF PROTOZOAN INFECTION AMONG FROGS IN A HUMID SUBTROPICAL MONTANE ZONE

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ABSTRACT : Survey conducted on the prevalence of protozoan parasites of *Rhacophorus nigropalmatus, R. leucomystax, Pterorana* sp., *Rana cyanophlyctis* and *R. limnocharis* in and around Shillong revealed the occurrence of 10 species of protozoa. *Opalina ranarum, O. obtrigonoidea, Protoopalina* sp., *Trichomonas* sp., and *Eimeria* sp. were recovered from the alimentary tract, whereas *Trypanosoma* sp. and *Haemogregarina* sp. occurred in the blood. *O.ranarum, Cepedea* sp. and *N.cordiformis* were most commonly occurring species. Only *R.cyanophlyctis* and *R.limnocharis* were infected with blood protozoa. All the parasitic species are being reported for the first time from Meghalaya.

Key Words : Protozoan parasites,frogs andShillong.

Parasitic spectra of amphibian hosts have been worked out in different climatic zones of the globe (Woo and Bogart, 1984; Affa and Amiet, 1985; Barta and Desser, 1984; Desser and Sekutiel, 1986; Fernandez *et al.*, 1986; Bell and Scholtysuk, 1987; Hysek and Zizka, 1988) and in India Sathyanarayana (1984). However, in respect of North-East India, Which is endowed with a vast natural stock of amphibians, the survey report is restricted to helminth parasites of Meghalaya (Diengdoh, 1989) and there is no record of protozoan parasites of amphibians, which are economically important being edible to man. In the present communication, we are placing on record the different types of intestinal and blood protozoans among different frogs in and around Shillong, a subtropical high rainfall zone of India.

MATERIALS AND METHODS

During 1989-1990 a total of 214 different frogs, namely *Rhacophorus nigropalmatus, R. leucomystax, Pterorana* sp., *Rana cyanophlyctis* and *R. limnocharis* were collected randomly from different place like Cherrapungi, Mawsynram, Barapani and Shillong. To recover the parasite, amphibians were dissected and their gut contents were mixed with saline in a small petridish. A thin smear of the content was prepared on a glass slide and semidried, fixed in Schaudinns fixative and proceeded for Heidenhains Haematoxylin staining. To visualize the blood protozoa, a thin smear of blood from each host animal was prepared and stained with Leishman's stain. Separate records were maintained for the presence or absence of various protozoa among the different host species.

.ESULTS AND DISCUSSION

Out of 45 *R.nigropalmatus,* 28 *R. leucomystax,* 21 *Pterorana* sp., 38 *R.cyanophlyctis* and *R. limnocharis* examined, all the host showed 100% infection with one or more species of parasites excepting *Pterorana* sp. the prevalence rate in which was 90.5%.Of these,4(8.9%), 3(10.7%), 4(21%), 3(7.9%) and 13(15.8%) of the infected hosts, respectively were found to harbour single protozoan species, whereas the rest were infected with two or more. Out of the 10 different species of protozoa recovered, the commonest infection was due to *Opalina ranarum* followed in receding order by *Nyctotherus cordiformis, Cepedea* sp., *Balantidium* sp., *Eimeria* sp., *Haemogregarina* sp. and *Trypanosoma* sp., *O. ranarum, Cepedea* sp., *Nyctotherus cordiformis, Balantidium* sp. and *Eimeria* sp., occurred in all the host species examined, whereas *O.obtrigonoidea* and *Haemogregarina* was restricted to *R.nigropalmatus, R. cyanophlyctis and R. limnocharis. Protoopalina* sp. was found to parasitize *R.leucomystax, R.cyanophlyctis* and *R.limnocharis, Trichomonas* sp., *Haemogregarina* sp. and *Trypanosoma* sp. were recorded only from *R.cyanophlyctis* and *R.limnocharis.* The percentage of infection due to blood protozoans were higher in the former host. Details of prevalence due to different protozoans among various host species are presented in Table 1.

Table—1. Prevalence of protozoan parasites among frogs in and around Shillong.

Host species	Total No. examined	Total No infected %	Number and percentage of hosts infected with								
			Opalina ranarum %	*O. obtrigonoidea* %	*Protoopalina* sp. %	*Cepedea* s.p %	*Nyctotherus cordiformis* %	*Balantidium* sp. %	*Trichomonas* sp. %	*Haemogregarina* sp. %	*Trypanosoma* sp.
Rhacophorus nigropalmatus	45	45	40.0	6.6	—	22.2	31.1	15.5	—	2.2	—
R. leucomystax	28	28	35.7	—	3.6	10.7	21.4	14.3	—	—	—
Pterorana sp.	21	19	42.8	—	—	9.5	14.3	4.8	—	—	—
Rana cyanophyctis	38	38	55.3	2.6	7.9	39.5	36.8	18.4	7.9	7.9	5.2
R. limnocharis	82	82	60.9	9.7	7.3	34.1	36.6	23.2	14.6	2.4	2.4

As reported in this work, a similar high rate of prevalence of *Opalina* sp. and *Balantidium* sp. has beer recorded from *R. cyanophlyctis* in Pakistan (Khan and Mahoon, 1988); however, the prevalence of *Nyctotherus cordiformis* was found to be much higher in the present investigation. Although a wide variety of blood protozoans has been reported from amphibian hosts (Woo and Bogart, 1984; Barta and Desser, 1984; Desser and Sekutiel 1986; Hysek and Zizka, 1988; Barta *et al.*, 1989), the present study indicates the presence of only one species of each, *Haemogregarina* and *Trypanosoma.* Both of these parasites were found restricted by Bell and Scholtysuk (1987). Woo and Bogart (1984) also reported a high prevalence (17%) of *Trypanosoma* among Hylidae in North-America.

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