

Figures 5,6. C-banded karyotype and idiogram.

one of the karyotypes of the other two species. In the absence of G-banding data for *T. melanopogon* and *T. longimanus*, it is difficult to trace the chromosomes of *T. saccolaimus* involved in centric fusion. Under these conditions, it can only be concluded that *T. sac-*

colaimus is karyologically more primitive than its congeneric species.

The authors thank Prof. N. B. Krishnamurthy, for encouragement, Dr. H. R. Bhat, of National Institute of Virology, Poona, for identification of the material and the UGC for the award of a Fellowship.

23 September 1985

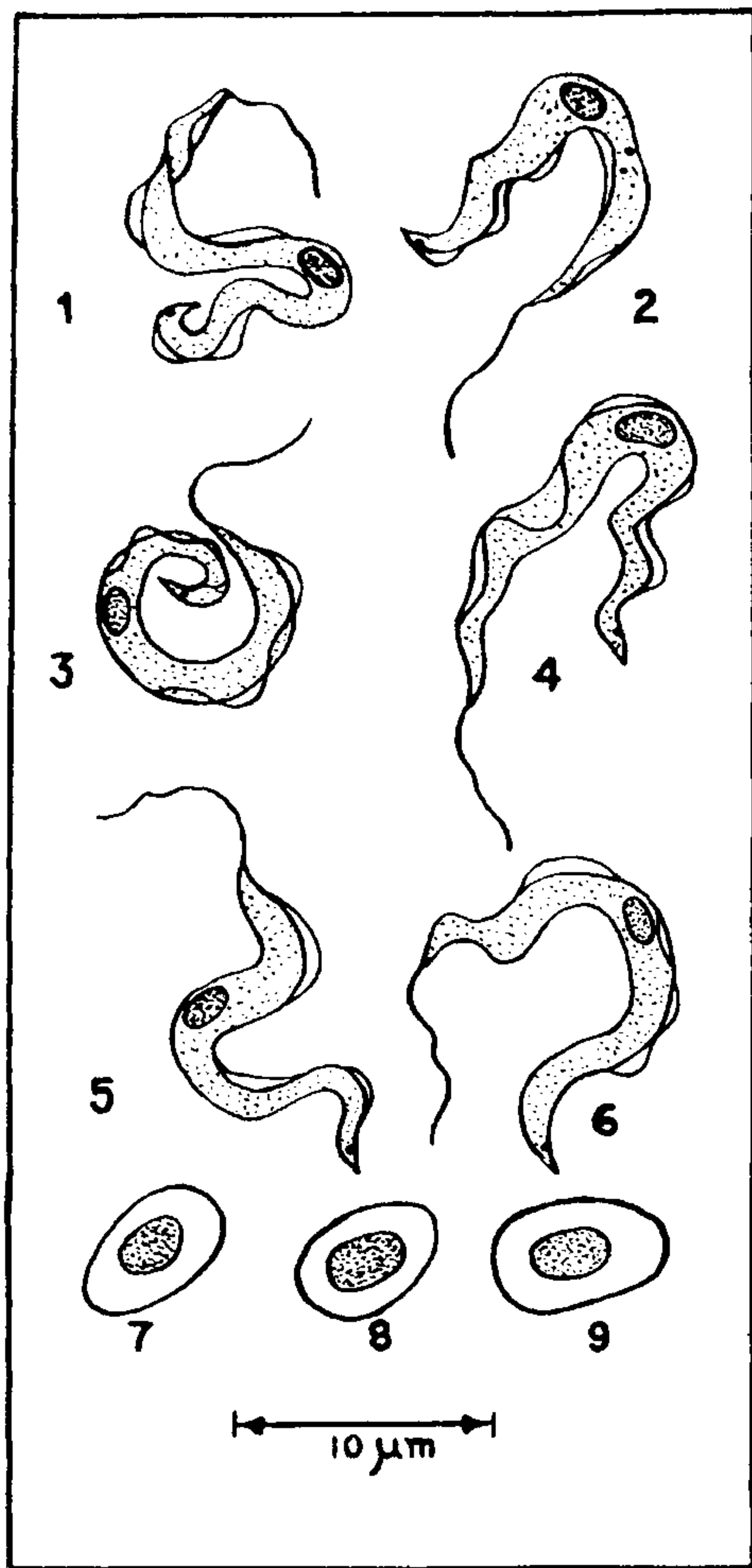
1. Koopman, F. F. and Jones, J. K., *About bats*, (eds) B. H. Slaughter and D. W. Walton, Southern Methodist Univ. Dallas, 1970, p. 22.
2. Blanford, W. T., *The fauna of British India*, Taylor and Francis (London), 1888-91, p. 350.
3. Ray-chaudhuri, S. P., Pathak, S. and Sharma, T., *Caryologia*, 1971, 24, 239.
4. Baker, R. J., *Biology of bats*, (ed.), W. A. Wimsatt (New York Academic Press), 1970, p. 65.
5. Seabright, M., *Lancet*, 1971, 2, 971.
6. Sumner, A. T., *Exp. Cell Res.*, 1972, 75, 304.
7. Levan, A., Fredga, K. and Sandberg, A. A., *Hereditas*, 1964, 52, 201.

STUDIES ON TRYPANOSOMA SEENGHALI VAR NOV SOPHORAE FROM PUNTIUS SOPHORE (HAM)

YATINDRA and B. N. MATHUR
 Department of Zoology, Government College,
 Ajmer 305001, India.

DURING our study on the protozoan parasites of fishes, specimens of *Puntius sophore* (Ham) were found infected with *Trypanosoma*, the haemoflagellate parasite. This forms the subject matter of the present communication. Lingard¹ had reported trypanosomes from the blood of Indian freshwater fish *Ophiocephalus striatus*. Subsequently several trypanosomes have been described from various freshwater teleosts of Indian subcontinent.²⁻¹⁸ The present study is the first report that *P. sophore* found infected with *Trypanosoma* in the Indian subcontinent.

P. sophore (Ham), the host fish, were obtained from the pond of Manglana (Nagore, Rajasthan). The blood smears were drawn on clean slides and air-dried and subsequently fixed in acetone free methyl alcohol and stained with Giemsa's stain. Observations were made under oil immersion lens. Figures of blood parasites



Figures 1-9. 1-6. *Trypanosoma seenghali* var. nov. *sophorae* (from the blood of *P. sophore*. Preparation air dried, methyl alcohol fixed and stained by Giemsa's method). 7-9. RBC of *P. sophore*, the host fish.

were drawn with the aid of camera lucida and measurements given in microns (figures 1-9).

Three out of 8 specimens of *P. sophore* (Ham) investigated were found infected with monomorphic haemoflagellate. The body of the haemoflagellate was

drawn into fine points at the ends. The nucleus was distinct and in most of the trypanosomes it is posterior, a little away from the middle part of the body. Flagellum is distinctly long, whip-like and forms well-developed undulating membrane with four to six folds. The kinetoplast is small and rounded, located slightly of the posterior end of the cell body. The cytoplasm is stained light blue with Giemsa's stain and granulated. No divisional stage of this monomorphic parasite was observed.

The trypanosome under discussion resembles in many respects with *T. seenghali*¹⁵. It is shown statistically by graphical presentation (figure 10). The comparative graphical presentation of morphometric measurements of both trypanosomes reveal the degree of resemblance in various aspects of morphometrics. The graphs have been plotted considering various factors, i.e., the minimum, the maximum and the mean values of different morphometric measurements of two trypanosomes. Dotted line represents the mean line of the particular morphological character and the two such mean lines of same characters of two trypanosomes show the degree of resemblance in morphometrics through their parallelity.

A high degree of resemblance is seen in the total body length and width and the distance of the nucleus from flagellar end. The length of the body and free flagella, the long axis of the nucleus, the diameter of the kinetoplast and post-kinetoplastic distance show median degree of resemblance while the width of the undulating membranes and short axis of the nucleus show least degree of resemblance in morphometrics of two trypanosomes.

A variety of fish trypanosome, *T. danilewskyi* var *saccobranchi* was described by Qadri⁶ in *Saccobranchus fossilis*, a fish from India. The trypanosome which he described shows resemblance in many respects, except in dimensions with *T. danilewskyi* (Lav. and Mesn). Similarly the trypanosome under discussion is now reported as a new variety of *T. seenghali*¹⁵ on account of the following factors. Both the trypanosomes occupy two different fish hosts, they are geographically separated and the morphological and morphometrical resemblances are only of 30%. A sub-species is valid if 75% or more of any population can be separated from the other population. In view of these, it is felt that the species under discussion can be described as a new variety, *T. seenghali* var nov *sophorae* after its hosts name *Puntius sophore* (Ham).

The authors thank the Fisheries Department, Ajmer, for providing the fishes, and to Dr

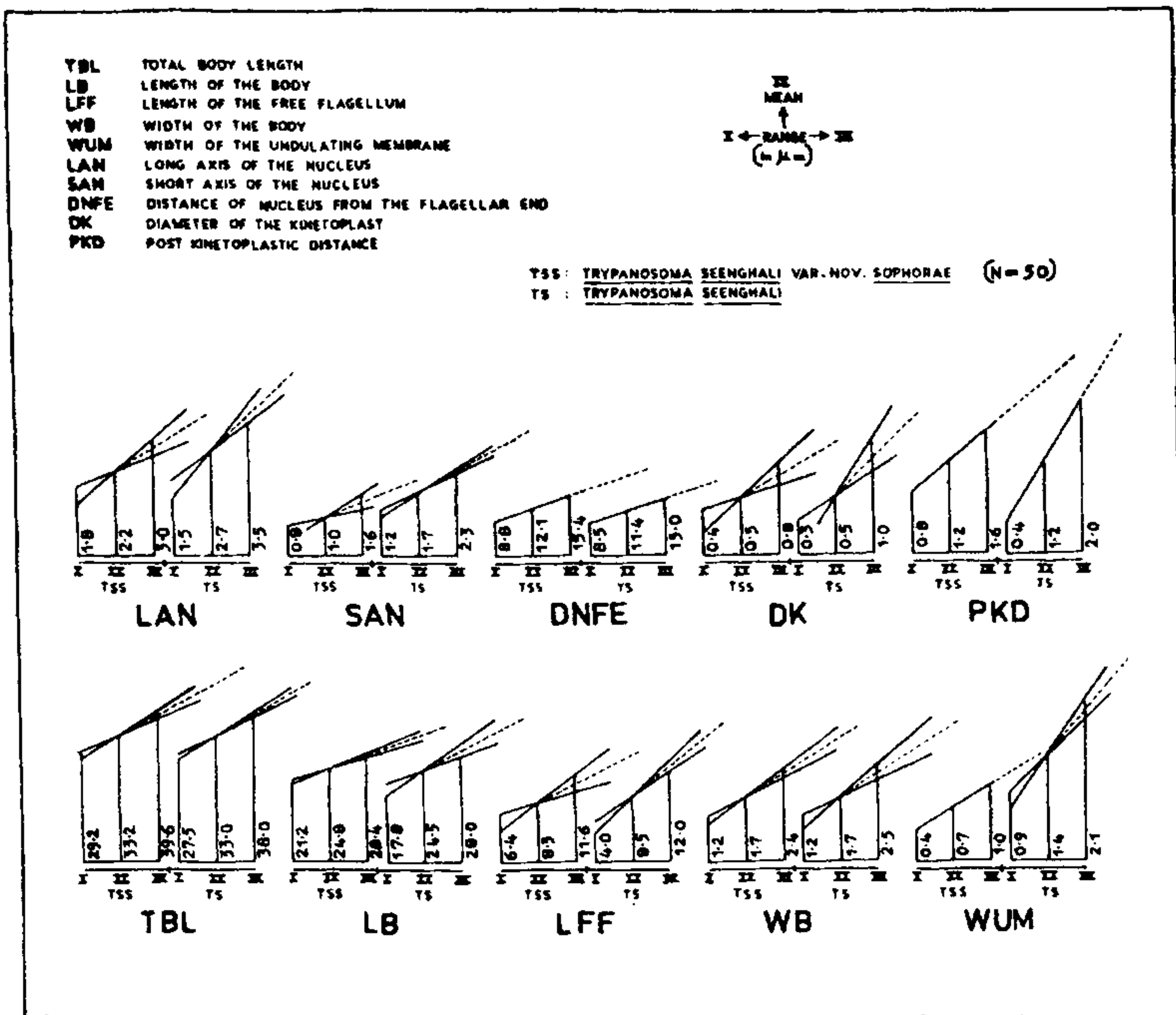


Figure 10. Comparative degree of resemblance between two trypanosomes.

M Parvateesam and Dr (Mrs) M. Jayasri for valuable suggestions. One of us (Yatindra) thanks CSIR, New Delhi for a fellowship.

14 February 1985; Revised 2 December 1985

- Lingard, A., *Indian Med. Gaz.*, 1904, **49**, 445.
- Castellani, A. and Willey, A., *Q. J. Microsc. Sci.*, 1905-1906, **49**, 39.
- Pearse, A. S., *J. Siam. Soc. Nat. Hist. Suppl.*, 1933, **9**, 179.
- de Mello, I. F. and Valles, C. F., *Proc. Indian Acad. Sci.*, 1936, **B3**, 120.
- Qadri, S. S., *Parasitology*, 1955, **45**, 79.
- Qadri, S. S., *Parasitology*, 1962, **52**, 221.
- Hasan, R. and Qasim, S. Z., *Z. Parasitenkd.*, 1962, **22**, 118.
- Raychaudhuri, S. and Misra, K. K., *Arch. Protistenk.*, 1973, **115**, 10.
- Misra, K. K., Chandra, A. K. and Chaudhuri, A., *Arch. Protistenk.*, 1973, **115**, 18.
- Tandon, R. S. and Joshi, B. D., *Z. Wiss. Zool. Leipzig.*, 1973, **185**, 207.
- Pandey, K. C. and Pandey, A. K., *Indian J. Zoot.*, 1974, **15**, 15.
- Mandal, A. K., *Angew. Parasitol.*, 1975, **16**, 87.
- Mandal, A. K., *Angew. Parasitol.*, 1978, **19**, 158.
- Mandal, A. K., *Bull. Zool. Sur. India*, 1979, **2**, 17.
- Joshi, B. D., *Indian J. Zoot.*, 1976, **17**, 5.
- Joshi, B. D., *J. Anim. Morphol. Physiol.*, 1978, **25**, 1.
- Joshi, B. D., *Proc. Indian Acad. Sci. (Anim. Sci.)*, 1982, **91**, 397.
- Narsimhamurti, C. C. and Saratchandra, B., *Proc. Indian Acad. Sci. (Anim. Sci.)*, 1980, **89**, 371.
- Mayer, E., *Principles of systematic zoology*, TMH edition, Bombay, 1969.