TRICHINELLA NELSONI BRITOV ET BOEV, 1972 IN CZECHOSLOVAKIA

The occurrence and diagnosis of trichinellosis in man and animals is permanently a subject of studies of many authors. Attention is paid particularly to the infectivity and pathogeny of strains isolated in different parts of the world (Pawlowski Z., Rauhaut W., Wiad. parazytol. 17: 481—486, 1971 and others). Britov (Wiad. parazytol. 17: 477—480, 1971) used biological methods for the study of various strains of *Trichinella spiralis* (Owen, 1835). Using the data of Villella (J. Parasitol. 52: 908—910, 1966) on the differentiation of the sex of muscle trichinellae he worked out several exact methods for their species differentiation. On the basis of experimental results, Britov and Boev (Vest. AN KazSSR No. 4: 27—32, 1972) determined other two species of *Trichinella* differing both biologically and genetically, namely *T. nativa* and *T. nelsoni*. *T. nativa* was isolated from the fox in the U.S.S.R. It is a common parasite of free-living carnivores in northern regions of the Euro-Asian and North-American continent. *T. nelsoni* was originally isolated from hyena in South Africa. It occurs mostly in Africa, southern regions of the U.S.S.R. and in the countries of South Europe. *T. nelsoni* was also recorded in Bulgaria and described on the basis of two different strains (Komandarev S. et al., Dokl. BAN 28: 1541—1542, 1975). Another report was from Switzerland (Shaikenov B. et al., Acta Tropica 34: 327—330, 1977). Garkavi (Mater. dokl. Vsesoyuz. konf. po probl. trikhinelleza cheloveka i zhivotnykh, Vilnius, pp. 53—55, 1972) isolated another species, *T. pseudospiralis*, from American racoon in Dagestan.

With regard to all these records we have identified a laboratory strain of *Trichinella* isolated in 1959 by Chroust from wild cat in Medzilaborce and kept and passaged mostly on guinea pigs in the Laboratory of Parasitology of the Veterinary University in Brno. The sample was examined using a rapid method of crossing with the strains *T. spiralis* and *T. nelsoni* described by Britov (1971). The resistance of muscle larvae of trichinellae to low temperature was determined after Sokolova (Asian Congr. Parasit., 23—26 February 1958, Bombay. Abstracts, p. 297, 1978). *T. pseudospiralis* was eliminated on the basis of a different morphological characteristic. The experiments were carried out using collection strains of *Trichinella* in the laboratories of the Institute of Zoology in Alma-Ata in November 1978.

For the temperature resistance experiments, a piece of muscle tissue of guinea pig was kept in a refrigerator at —10 °C for five days. The sample was then digested by an artifical digesting fluid and the number of living larvae was counted. Since 95 % of *Trichinella* larvae died during this time, *T. nativa*, which is resistant to low temperature, was eliminated.

Males and females of two other known *Trichinella* species were crossed with those of the examined strain and the stage of embryogenesis, number and state of adult specimens were evaluated in experimental mice:

a) Three mice were infected with *T. spiralis*, each with 10 females of the collection strain and 6 males of the examined strain. Other three mice were infected each with 6 males of *T. spiralis* and 10 females of the examined strain. After six days the mice were killed and examined for the presence of trichinellae. A total of 8 adult males and 15 fertilized females with impaired embryogenesis and a large number of spare egg cells were found. In no case the genesis of embrya reached the stage of formation of larvae which were not found in the females. No crossing or fertilization occurred between the males and females of the species examined. Consequently, *T. spiralis* was not involved.

b) The same number of mice were infected with *T. nelsoni*, each with 9 females of *T. nelsoni* and 6 males of the examined strain. Other three mice were infected with 9 females of the examined strain and 7 males of *T. nelsoni*. After six days the mice were killed and adult trichinellae were found in their intestines. All 11 males were unchanged and normal embryogenesis at the stage of larvae was observed with 15 females. In this case, the parasites were capable of crossing and fertilizing which indicates that the specimens under investigation belong to *T. nelsoni*.

c) The control of fertility of the examined species was carried out in two mice. Each of them was infected with 50 muscle larvae regardless of the sex. After six days the mice were killed and numerous males and females with signs of normal embryogenesis were found in their intestines (30—47 larvae per female).

Our results contribute to better knowledge of species representation of trichinellae in Czechoslovakia and of the distribution area of *T. nelsoni*.

M. NEVOLE, V. A. BRITOV
and L. A. SOKOLOVA,

Veterinary University, Brno,
and Institute of Zoology, Academy of Sciences of the Kazakh S.S.R., Alma-Ata