

# The Office International des Epizooties *ad hoc* Group on Non Tsetse Animal Trypanosomoses: Its Origin, Scope and Perspectives

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*A summary of the goals and activities of the ad hoc group on Non Tsetse Transmitted Animal Trypanosomosis belonging to the Office International des Epizooties is presented.*

Key words: animal trypanosomosis - Non Tsetse Transmitted Animal Trypanosomoses - Office International des Epizooties - *Trypanosoma evansi* - *Trypanosoma vivax* - *Trypanosoma equiperdum*

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## ORIGIN

In the beginning of this Office International des Epizooties (OIE) *ad hoc* Group it appeared that - in spite of their wide distribution throughout the world - some animal trypanosomoses and mainly *Trypanosoma evansi* infections seemed considerably less investigated than the African trypanosomoses (human and animal). Correspondingly there was less information available on the incidence and the economic importance of *T. evansi* infections according to the infected animal species (camels, cattle, buffaloes, horses... ) and the regions where the disease was reported. Nevertheless, some interesting studies were already carried out in South America, mainly on Mal de caderas in Venezuela and in Argentina; in Central Asia, mainly on surra of *Camelus bactrianus* in Kazakhstan; in South East Asia on Surra of buffalo in Indonesia... as it was recorded at an informal meeting of the 4th International Conference of Institutes of Tropical Veterinary Medicine in Kissimee, USA, May 8-12 1983. However, many research workers either in laboratory or in the field underlined a gap of knowledge to be filled in this matter.

## THE OIE WORKING GROUP ON *T. EVANSI* INFECTIONS

To improve this situation a working Group on *T. evansi* has been set up at the OIE Headquarters on May 26, 1983 within the framework of the OIE Norms Commission and with the agreement of the

Director General of the OIE, the Director of the Animal Production and Health Division of the Food and Agriculture Organization, in consultation with the Chief of the Trypanosomosis Unit of the World Health Organization. The participants in the funding meeting came from Ethiopia, Germany, Indonesia, Senegal, the Sudan and from the following International Organizations or Institutions: FAO, ILRAD, CIRAD/EMVT, CEBV, OIE. They proposed that (1) *T. evansi* infections are of great economic importance throughout Africa, Asia and Americas but are poorly evaluated; (2) international cooperation is essential to develop a better knowledge of their epizootiology thanks to appropriate means of diagnosis and consecutive reporting of their incidence to the OIE and FAO; (3) research work has to be encouraged regarding their control including the study of their vectors and the setting up of new and easy to use means of control, including trypanocides and insecticides; and to meet at every opportunity e.g during international meetings dealing with related matters of interest.

In accordance with these objectives the Group met 15 times at the OIE General Session in Paris, France between 1983 and 1997; three times at meetings organized by OAU/IBAR and the International Scientific Committee for Trypanosomosis Research and Control (ISTRIC) held in Harare, Zimbabwe in 1985; Lome, Togo in 1987; Monbasa, Kenya in 1989; and once at the 5th International Conference of Institutes of Tropical Veterinary Medicine in Kuala Lumpur, Malaysia in 1986.

Moreover, several members of the Group have made use of other occasions to meeting particularly: at the World Veterinary Congress, Montreal, Canada in 1987; at the 13th and the 14th Conferences of the World Veterinary Association for the Advancement of Veterinary Parasitology (WAAVP) in Berlin, Germany and in Cambridge,

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UK in 1989 and in 1993 respectively; at the 7th International Conference of Parasitology (ICOPA VII) in Paris, France in 1990; at the 21st meeting of the ISCTRC in Yamoussoukro, Cote d'Ivoire in 1991. Currently members of the Group are participating in the 23rd meeting of the ISCTRC which was held in Maputo, Mozambique (September 29-October 2, 1997).

After each annual meeting in Paris, a draft report is compiled by the Secretary then sent to each participant for corrections and or amendments before publication in the official set of documents of the following OIE General Session in three languages: English, French and Spanish

#### **MAIN FACTS RESULTING FROM THE ACTIVITIES OF THE OIE WORKING GROUP ON *T. EVANSI* INFECTIONS**

(1) genetic and biomolecular studies of many strains of *T. evansi* from various origins; (2) difficulties to differentiate *T. evansi* from *T. equiperdum*; (3) collection of many epidemiological data for refining and expanding the distribution map for *T. evansi* in Africa, Asia and South America; (4) free distribution of diagnostic kits for detecting *T. evansi* infections in the field thanks to the participation and the kindness of the Institute of Tropical Medicine in Antwerp, the Institute of Molecular Biology of the Free University, Brussel, Belgium, ILRAD (now ILRI) and Brentec Lab, Nairobi, Kenya. Techniques employed: direct microscopy by using a detergent; slide agglutination test; enzyme-linked immunosorbent assay (Elisa) for antibodies or antigens; card agglutination test for trypanosomosis (CATT) with a cold probe; (5) greater interest in the study of *T. evansi* infections by many countries, either in relationship to camel breeding (e.g. Mauritania, Morocco, Mali, Egypt, Ethiopia, Kenya, the Sudan, India, Kazakhstan, Tunisia) or in relationship to other animal species e.g. buffaloes, cattle, goats, horses, (India, PR China, Indonesia, Vietnam, Thailand, Brazil, Argentina, Venezuela); (6) research synthesis, development and marketing of the first new effective trypanocide since more than thirty years: melarsomine, registered as CYMELARSAN, active against *T. evansi* and other members of the subgenus Trypanozoon recommended for use in camels and still in development in other animal species. Synthesis of another active molecule at the Free University Brussels but not marketed due to the high cost of the development and registration. Current development in the field of new formulations of former trypanocides by research workers of the Institute of Tropical Medicine, Antwerp. Announcement of the new active molecule Trybrizine at the 16th annual meeting in May 1995 by the research workers of the Veterinary

Institute in Shanghai, PR China; and (7) exchange of information with the International Commission of the Zoological Nomenclature, with the WAAVP and the World Federation of Parasitology.

#### **NEW DESIGNATION OF THE GROUP: OIE AD HOC GROUP ON NON TSETSE ANIMAL TRYPANOSOMES (NTTAT)**

Considering the work carried out by the *T. evansi* working Group and its various achievements the OIE Administrative Commission decided, at its meeting of February 1991, to extend the scope of this working Group to all NTTAT around the world. Designated as an *ad hoc* expert Group, the Group is now attached to the "OIE Foot-and-Mouth Disease and other Epizootics Commission". The aim of the Group is to study the problems related to the non-cyclically transmitted trypanosomoses in animals.

The terms of reference of this Group which will meet once a year in May during the OIE General Session are to study, discuss and inform OIE Member Countries of the following points: (1) the pathological and economic impact of NTTAT in Africa, Asia and America; (2) the possible interference of NTTAT with other diseases and immune responses to vaccinations for other diseases (e.g. FMD) and haemorrhagic septicaemia (HS); (3) the reliability of diagnostic tests, the cost involved and the ease with which trypanosomes may be differentiated from each other (e.g. *T. evansi/T. brucei*; *T. evansi/T. equiperdum*; *T. evansi/T. vivax*) the similarities and differences between strains, isolates and stabilates of various origins, so that possible differences in their genetic immunological and biochemical characteristics may be determined; (4) the problem of chemoresistance to trypanocidal drugs; (5) the current research into new drugs and drug evaluation; and (6) new means for the control of NTTAT.

The work of the Group will be conducted in close cooperation with other bodies which are working in related fields: the ISCTRC of the OAU/IBAR; the FAO Trypanosomosis Unit; the WHO Tropical Disease Division-Steering committee on chemotherapy, immunology and pathology of African trypanosomosis; the International Atomic Energy Agency (IAEA).

#### **ACTIVITIES CARRIED OUT BY THE AD HOC GROUP**

Keeping the spirit of its promoters the Group always tried to meet interested and qualified individuals working from the basic research to the applications of control measures in the field. In this way many contacts were or are being developed for the exchange of ideas and experience. It resulted many publications either directly or on the occasion of several international meetings.

The First International Seminar on NTTAT was held in Annecy, France (14-16 October 1992) with the participation of the representatives of 22 countries from Asia, Africa, Europe and America gave rise to the presentation of 80 reports and posters, conclusions and recommendations regarding epidemiology (including diagnosis), control and perspectives were published in 1993 (*Rev sci techn Off int Epiz* 12: 273-281).

Taking account of the matters which were presented and discussed in this symposium numerous works were carried out in Africa since then: surveys of vectors in areas depopulated of tsetse but with persistence of *T. vivax* infections. Moreover, in South America, attention was drawn to the high degree of *T. vivax* infections in cattle and *T. evansi* infections in horses in Pantanal, MS, Brazil since 1995 with a development of *T. vivax* outbreaks at the end of 1996/beginning 1997 at the Brazilian/Paraguayan and Bolivian borders. An international expert elaborated a report in 1996 about measures to be taken.

In the mean time six outbreaks of dourine (*T. equiperdum*) were suspected by Mexico in 1995 but this was invalidated in 1996 with the false positive results having been attributed to cross reactions with other trypanosomes. On the other hand, a network on trypanosomes was set up in Guyana (Suriname, Guyana, French Guiana) with close cooperation with Venezuela under the name "Trypnet" (cooperation IICA/CIRAD/EMVT/Pasteur Institute, Cayenne) with the edition of a quarterly: "Trypnews" giving information about the situation regarding trypanosomes in this sub-region. Recently, after a 5 year study a PhD thesis was carried out and defended on September 26, 1997 under the title *Trypanosomes of Livestock in Latin America with Special Reference to the Guyana's Plateau* (502 ref., 420 pp.). In Brazil the agricultural council created a discussion list on Internet with the name "Tryplink-L". In Asia particular attention is devoted: in Vietnam to the trypanosomosis in buffaloes, cattle and horses with several articles regularly published in "Veterinary Sciences and Techniques"; in India to the research work on epidemiology and basic research particularly in Punjab Agricultural University, in the College of Veterinary and Animal Science, Bikaner; in Patani Surgical Hospital, Palanpur; in Animal Disease Research Laboratory, National Dairy Development Board, Anand; in Thailand through the German Cooperation Agency (GTZ); in Indonesia through the British Cooperation Agency (ODA). The problem of *T. evansi* infections in Asia is stimulated by the chronic state of the disease which gives rise to an immunodepression in affected animals in enzootic areas and which can interfere with the establishment of a good immunity in mass vaccination

campaigns (e.g. against FMD and HS). This matter is the concern of the ad hoc group for the South East Asia FMD vaccination campaign which is being developed currently and which was discussed in the former annual meetings in 1996 and 1997.

#### COMING SPECIALIZED MEETINGS

Several meetings were scheduled within the year either directly by OIE or jointly with scientific bodies in relationship with the *ad hoc* group.

*Trypanosomiasis and Leishmaniasis Symposium* (18-21 April, Arcachon, France) - Jointly organized by the British Society for Parasitology & Université Victor Segalen, Bordeaux, with the following provisional agenda: Cell differentiation - Signaling and apoptosis - Gene expression - Immunology - Biochemistry - Chemotherapy - Epidemiology.

*19th Meeting of the OIE ad hoc group on NTTAT* - (27 May 1998, Paris, OIE Headquarters) - Annual meeting of the group, with the following agenda: (1) Interim report by the Secretary. (2) Epidemiological surveys of NTTAT: Reliable and economic diagnostic tests for the evaluation of the economic impact of *T. evansi* and *T. vivax* infections in various animal species; Current facts in the detection or suspicion of new cases of *T. equiperdum* infection (Dourine); Proposal for an international standardization of Elisa's on a regional basis. (3) Control methods of NTTAT: Progress in the identification of vectors and their control; Research on trypanocides and new trypanocidal formulations. (4) Basic research.

*Obihiro University/OIE International Symposium on Strategies for Research and Control of Surra (T. evansi) infection* (Research Centre for Protozoan Molecular Immunology, Obihiro University - Japan - Wednesday 19 - Saturday 22 August 1998). The main items of the provisional agenda are: Diagnosis - Epidemiology - Molecular biology - *In vitro* cultivation - Chemotherapy - Evolution - Use of molecular tools - Prospects for control of vectors - Assessments of the socioeconomic impacts - International network on Surra.

An International Seminar was also scheduled to be held in Changchun, PR China, at the kind invitation of the President, Changchun University of Agricultural and Animal Sciences but was postponed due to the overlapping with other international events which developed in the same time. This venue will be re-examined to be held at another date.

#### PERSPECTIVES

Created for a better understanding of animal trypanosomoses the non tsetse transmitted OIE *ad hoc* Group on NTTAT triggered a lot of studies

around the world since its setting up in 1983. It will continue to draw the attention to the peculiar aspects of these infections, in particular: to the study of *T. evansi* infections in camels (as demonstrated by recent publications in the diagnosis and the control: article and PhD thesis in Mauritania); to the

evaluation of the immunosuppression due to inapparent infections; to the differentiation of *T. evansi* *T. equiperdum* ; to the deepening of the knowledge in the vectors at NTTAT and “related insects” in the persistence of *T. vivax* infection in the African depopulated tsetse areas.