

RESOLUTION OF ERFAN ANTHRAX WORKING GROUP Lusaka, 26-28 July 2022

ERFAN is an international scientific network supported by the World Organisation for Animal Health (WOAH) and funded by the Italian Ministry of Health for 4 years, starting from May 2019.

The following resolutions were made in the meeting based on the three ERFAN Pillars.

PILLAR I: IMPROVEMENT OF PERFORMANCES OF DIAGNOSTIC TESTS

The participants discussed and decided the following:

Sharing of diagnostic procedures through the ERFAN Website

In 2022, SOPs concerning *Bacillus anthracis* detection by conventional and Real Time PCR with Sybr Green are available on ERFAN website. Real Time PCR with Taqman probes SOP and the procedure of detection of anthrax spores from soil will be uploaded as soon as possible on the website.

The ERFAN Secretariat provided information about how to find the shared diagnostic procedures and their storage on the website site.

To consult the Standard operating procedures, please go to the website www.erfan.it Enter in the Partners Area and Log in. The Standard operating procedures are categorised per geographical area (in English or French/English language). Choose anthrax SOPs.

Direct Diagnosis, culture

Some laboratories have the capacity in place for isolation. The biggest problem is the absence of BSL-3 laboratories in many countries.

The detection of *Bacillus anthracis* for the participant laboratories can also be improved by microscopic examination using also M'Fadyean and Schaeffer-Fulton stainings.

Direct Diagnosis, Conventional PCR

Most laboratories have conventional PCR available even if they don't perform PCR

for anthrax detection. SOPs for anthrax conventional and Real Time PCR are available on the ERFAN website.

Angola, Sudan, Tanzania, Senegal, Botswana, Namibia, Mauritania need training and equipment for conventional and Real Time PCR. When the equipment and the reagents will be available, the training will be planned.

Direct Diagnosis, Real-time PCR

Real-time PCR is available in some laboratories, but reagent costs and availability of instruments need to be evaluated compared to conventional PCR.

CFT

CFT is scarcely used for serological analyses as regards anthrax. IZSPB developed a CFT for research use that can be also useful for routine serological survey. The procedure has not still been written, but a scientific article in which it's described (Adone R, Sali M, Francia M, Iatarola M, Donatiello A, Fasanella A. Development of a Sterne-Based Complement Fixation Test to Monitor the Humoral Response Induced by Anthrax Vaccines. *Front Microbiol.* 2016 Jan 28; 7:19. doi: 10.3389/fmicb.2016.00019).

ELISA test

Commercial ELISA kits for anthrax are usually available just for some domestic species. Due to the shortage and high cost of ELISA kits, Vet Labs performing anthrax diagnosis are also encouraged to implement also the CFT method.

Ring test: PCR

Ring test will be organized by IZSPB in 2023 for conventional and Real Time PCR.

Reference material for PCR

Bacillus anthracis DNAs will be available this year, 2022. IZSPB will provide positive controls to the network members, if requested. ERFAN will cover the shipment costs.

Equipment

Laboratories need to contact international organizations, such as FAO, through their countries' representatives to receive financial and technical support in this aspect.

PILLAR II: TRAINING AND TECHNOLOGY TRANSFER

The participants discussed and decided the following:

Direct Diagnosis- Isolation

Tanzania needs to implement culture procedures. Training can be organized simultaneously with PCR training in 2023.

Isolation of Bacillus anthracis spores from contaminated soils

All the participants countries declared to be interested in this training. It can be organized probably in Ethiopia in 2023.

Conventional PCR

Almost all the participants, except Ethiopia, don't perform conventional PCR. When the equipment and reagents will be available, training will be carried on, probably in 2023 in AHI of Sebeta (Ethiopia) with all the interested partners.

Real-time PCR

All the participants countries need training. However, reagent costs, availability, and the implementation of this method need to be evaluated compared to conventional PCR. After these evaluations, training has been considered and will be carried on in 2023, probably in AHI of Sebeta (Ethiopia) with all the interested partners.

Sequencing and bioinformatics analyses

IZSPB offered its support for sequencing and performing bioinformatics analyses of *Bacillus anthracis* strains isolated in the different countries.

ERFAN will cover the costs for analyses and DNA shipment.

Some partners could process their own material/sample in Italy. If the ERFAN budget allows it, the costs for travel and accommodation in Italy will be covered.

PILLAR III: RESEARCH ACTIVITIES, DESIGN AND IMPLEMENTATION OF REGIONAL RESEARCH PROJECTS

Both big project proposals and small projects should be explored. The latter are useful to generate preliminary data of single countries to be used for future big project proposals.

Bigger proposals should incorporate relevant topics such as:

- Estimation of anthrax diffusion in domestic animals and wildlife;
- Mapping as a tool for predicting the risk of anthrax outbreaks;
- Biomolecular epidemiology;
- Other projects of interest.

Fund raising

This should be a priority for all the participating institutions. Consortium for large projects has to be composed of African partners to stress the importance (need for) of the regional/international action.

Every week, calls for proposals are suggested in the ERFAN Website by Dr De Antonis. Bigger proposals may be discussed at the LTC meeting for SADC region where CVOs will meet to discuss animal disease issues.

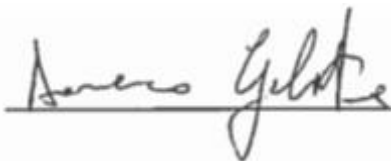
Identified possible donors are, but not limited to, Bill Gates foundation and Canadian donors.

CONCLUSIONS AND REMARKS

All participants valued and recognised the importance and the impact of ERFAN project in building an anthrax collaborative network, strengthening the capacity of veterinary laboratories for anthrax diagnosis and sharing the experience on disease control.

All participants approved the resolutions.

The Verbaliser
Domenico Galante



Foggia, 09 August 2022