

INTERNATIONAL COOPERATION IN FOOD MICROBIOLOGY

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Good morning . It is my very great pleasure to be here today and I would like to thank the organizers for inviting me once more in Barcelona to present the introductive paper to the International workshop on Rapid methods and automation in Food microbiology .

The title of my presentation today is the “ International Cooperation in Food Microbiology”which, I guess, does not looks so strange as an introduction to an International workshop . In fact, looking at my past professional life and comparing with other people around me , I can’t do otherwise as to be convicted that , from a long time, I have been lucky to be introduced in an international world . So, I thought it would be interesting , during a few minutes , to look at the exceptional position we have, as Food microbiologists , in the world of globalization ; some of you have probably a wider experience than mine in that field ; the youngest make their first steps in that new world . What I propose to you this morning is just to have a look to some of the possibilities of international cooperation we may have in our specialized field .

In a first part, I would like to share with you some views referring especially to my personal experience .

In a second part, I shall describe with more details some of the international organizations connected with Food microbiology .

The last part will be a short conclusion .

I- From now, we are all involved in International cooperation in Food microbiology .

As we are participating in an International workshop , all of us are, today , involved in international cooperation... of course , there is always a first step for everything and I think it is nice to remember the first foreign scientist we met ; personally , I like to do so : it was in December 1966; at that time, I was working in Ploufragan(Brittany) ; there was no laboratory in the place , only a control lab far from a few kilometers .My project was to work about quality of poultry meat and the most important seemed to help industrials improving the shelf -life of poultry meat , as it was sold as refrigerated while the conditions of processing were not so good ; I had to make choices about the type of sample, the types of microorganisms to be studied , the statistics to be applied ;so, it was necessary for me to receive some advice , even before building the laboratory .. it was the beginning of the adventure ..

So my director suggested me to write to a scientist who was well known in that field : Dr Ella. M Barnes ; she was working at the Food Research Institute in Norwich (UK) and , each year, she gave a course in Pasteur Institute in Lille on poultry meat microbiology; immediately, she proposed me to welcome me in her laboratory for a few days ; she was so nice as to make me show as well the laboratory work as the work in the processing plants ; she also gave me some very good advice to begin some applied research in that field and invited me to go back and discuss of my projects with her later on ; so I did and we had very fruitful discussions ; that helped me a lot to build the basis of the future work of a laboratory which has been expanding its activities along the years ... Maybe it is not possible for everybody to have such an experience but, anyway, I think the first international contacts may be very important in our lives . Later on ,the laboratory was built and we began to work , then present our results during international symposia The participation in international meetings is of major importance ; personally, the first international symposium I have been participating in, was a symposium on quality of poultry meat which was held in Roskilde (DK) in 1973 under the World’s Poultry Science Association; many others followed, of course but I can’t forget the meeting on “ Rapid methods and automation in Food microbiology” which was held in Kiel (D) in 1974 .I did not present anything on that day ; I was just learning and listening at the different papers when , suddenly , we had we had a very interesting and unusual presentation : the speaker , a young American Chinese was quite “dancing” , showing beautiful slides : the miniaturized methods used to detect or enumerate microorganisms from poultry was the subject of the presentation : he was using microplates instead of tubes and a micro-inoculator instead of platina loops ... As I was working on poultry meat

microbiology and was very much interested by rapid and economic methods in order to study a large number of strains simultaneously , I met Dr Fung at the end of the session , asking for informations and reprints ; I must say it was the beginning of a long story .. first because he sent me reprints and even his thesis and, from that time we became very good friends but I must say, too , that it opened me new horizons , new contacts and a willingness to communicate about the possibilities which were offered to food microbiologists: they could use rapid method which were , till that period, used in the medical field only ... for me , it was the beginning of a long story in science and friendship

Of course, to give and receive the best, we have to be able to communicate ; in our world, that means to listen, to understand, to answer in a proper language .. I must say it was not so easy in Europe a few decades ago and , the first time I went to United States of America (that was in 1980, in Dr's Fung laboratory , I realized that everybody was speaking English and that the contacts were far more easier for Americans to communicate with colleagues than for Europeans to communicate with colleagues in Europe . Anyway, knowledge and friendship , usually comes from those contacts .

Some of us have organized such meetings and the organization is surely the best school of International cooperation ; Josep and Marta surely know quite everything about that ; but we are part of a chain : we receive advice and examples from others : we have here today a perfect example as Josep went to KState and participated in a workshop before launching the workshop here, in Barcelona .. some of us have , maybe, the same type of experience .

In that first part , if you don't mind, I would like to add some words about my personal professional life: Quite early, I have been requested to participate in meetings in Brussels , as it was decided at the beginning of seventies to realize common experiments during which, using the same protocol in each country, we could compare the results and draw some conclusions about the type of sample, the effect of air or water chilling ... At that time, we had to share experience and results , of course but , very early , it became obvious we had to try to understand as well as possible the way of thinking, the way of working of our colleagues , the environment in which they were living and working , some elements of economy , of politics sometimes ; that was the guidelines we had to consider as rules .. That was really important at that time especially when, through those experiments on poultry meat and processing plants , we were somewhat like building one small part of the European Community .

I have to specify the good conditions in which we were working : we had the possibility to visit the laboratories of foreign colleagues, but also the different processing plants ; those visits were really very fruitful in all the ways of exchange and knowledge ..

I spoke earlier about my first participation to an international meeting on rapid methods and automation in Food microbiology , but, the necessity of validating the methods used appeared quite immediately , as similar results can be obtained only when the same methods are used in different laboratories ; that was the reason why I became involved in the standardization and, as I was in charge of the Central Food Hygiene Laboratory in Paris, I was requested to be the convenor of the working group 6 of technical committee 275 of CEN (Comité Européen de Normalisation); at that period , I also participated to some meetings of Codex alimentarius , some of the World's Health Office; I have also been involved in some European meetings before the creation of the Food Safety Agencies , gave some training to Vietnamese studentsthat would be very long to describe , but I think it may be useful to focus on some of them .

II- Short description of some international organizations connected with Food microbiology

- ISO and CEN

As you probably know , different official bodies are concerned by standardization under different aspects for different types of production and everybody knows ISO, i.e. the International Standardization Organization; this organization was created in October 1946; its seat is located in Geneva (CH) ; the creation results from the fusion of two organizations :

ISA, which was the International Federation of National Associations of Standardization, founded in New-York in 1926, and

UNSC, i.e. Committee for coordination of standardization of United Nations, created in 1944 .
The first national Assembly was held in 1949 in the great amphitheater in Sorbonne (Paris)
ISO is composed of 247 committees . All standards are obtained by consensus ; however , they are not mandatory ..

Concerning Food microbiology the technical committee in charge of is TC34 / SC9 ; the actual president is Bertrand Lombard (F); the meetings are held in a different country each year ; for example , the last meeting was held in Valencia (Spain) and the organizer was David Tomas (I must say it was very nice to participate in a meeting organized by such a dynamic scientist) ; next time , the meeting will be held in Argentina ; as usual, it will be a joined ISO/CEN meeting

From a general point of view , the CEN, Comité Européen de Normalisation (*in English "European Committee for Standardization "*) has been created in 1961 in order to harmonize the standards elaborated in Europe ; that means that the standards are mandatory in all countries of EC (at the contrary, the standards which are elaborated by ISO are facultative , which means a great difference ... All members are members of ISO as well .

The seat of CEN is located in Brussels (B) .In the beginnings , it was created by the national organisms for standardization from France, Germany and Benelux countries .Nowadays, the full members are the 27 countries of EU and the three countries of AELE (Association Européenne de Libre Echange) which own such an organism (Switzerland, Norway and Island). CEN elaborates technical standards in favor of international trade .

CEN/TC275/WG6 was created in 1993 and I was nominated as the convenor ; nowadays , Alexandre Leclercq from Institut Pasteur in Paris , is in charge of the group .

From the beginnings, one main principle has been followed during the work of this group , i.e. the Vienna Agreement ; this agreement requires that, as often as possible, ISO methods are taken into account .

In order to avoid any overlap, there is also an agreement between different groups of CEN that only one group is in charge of a particular method . For example, TC302 in charge of milk and dairy products analysis may choose one specific technique . In this case, it requests TC 275/WG6 to refer to this specific technique in the standard method . The necessity of taking into account the experience of other groups around the world, for example AOAC and IDF (International Dairy Federation) , has also been emphasized from the beginning and , presently, the basis for a good cooperation have been set up .

However, whatever the method, it must be validated by setting up interlaboratory tests and compare the proposed method with the Reference one . . This is the reason why , under WG6 of CEN/TC275, a proposal for a standard method entitled " Evaluation of microbiological methods for detection and/or enumeration of microbiological contaminants in foods " has been presented and accepted as an EU project SMT4/CT96-2098. The project has been carried on from 1996 to 2000 ; the results for all types of contaminants studied have been accepted by the equivalent group of ISO and published in the " International Journal of Food Microbiology" and later on, adapted as Codex standards . They have become Reference methods, which was essential for the development of alternative methods ...

I have also to add something very important : some trials were organized by European and US laboratories in order to compare the ISO method for the detection of *Salmonella* (6579 2002) with the AOAC method .

Finally, ISO 6579:2002 was recommended to be adopted as official First Action for the analysis of fresh cheese, fresh chilled and frozen poultry and dried egg product .

Giving performance criteria to reference method was, of course the first step to make alternative methods accepted .

During the whole week, you will study a lot of wonderful alternative methods who present a lot of advantages versus the reference ones : precision, rapidity and reproducibility, cost, simplicity of use, training of technicians, quality and stability of reagents, quality of after sales service ... but the eventuality of acceptance of new technologies, including PCR, as standard methods was obtained after long discussions
Finally,

An important resolution was taken during the joined meeting of ISO/TC34/SC9 and CEN/TC275/WG6 held in Parma (It) in April 2004.

" Each time a standard method is being revised , the possibility of using new technologies , including PCR, must be examined by comparing results with those obtained when using the official conventional method . For a given microorganism, in order to complete the existing method, the development of standardised methods based on new technologies can be proposed when the purpose to be obtained (for example pathogenicity level) makes it necessary .

When new technologies , including PCR, are used as alternative methods , they must be validated against the reference method .

Those sentences look probably as quite simple ,but I am sure you cannot imagine the number of hours of discussions which were necessary to obtain a consensus : that is " international cooperation "

But the hours of discussions were very fruitful ..as , finally, rapid methods were accepted according to the EC regulation 2073 15 December 2005 concerning microbiological criteria :

" Test results are dependent on the analytical method used and, therefore, a given reference method should be associated with each microbiological criterion . However, Food business operators have the possibility to use analytical methods other than the reference method, in particular more rapid methods, as long as the use of these alternative methods provide equivalent results "

Those informations are given in order to show the usefulness of the standardization bodies but , in fact , there are a lot of interconnexions between a lot of international organizations

To give an example, during the last joint meeting of ISO TC34/SC9 and CEN TC275/WG6 , the last part of the meeting concerned the liaison with other organizations :

International Dairy Federation (IDF), Codex Committee on Food Hygiene , AOAC (Association of Official Analytical Chemists), WHO (World Health Organization), IUMS (International Union of Microbiological Societies), OIE (Office International des Epizooties), and also NMKL (cooperation agreement between NMKL (Nordic Committee on Food Analysis) and ISO TC34/SC9), ISO TC347 and ISO TC147/SC4 Water microbiology .

This enumeration gives an idea of International cooperation . But, as it is not possible to describe each of them , I would like to focus on some of them during a few minutes : the Codex alimentarius (especially, the Codex Committee on Food Hygiene), WHO and IUMS .

- Codex alimentarius

Of couse, all of you have heard of Codex alimentarius : the name means a food code and is a compilation of standards for food , which can be applied in all countries . Codex has been created in 1962 when the organization of United Nations for Food and Agriculture (FAO) and the World's Health organization decided it was necessary to elaborate international standards which may be used by the Food industry which was in full expansion in order to protect consumer's health . in fact , in the first volume , it is said that the objectives of Codex alimentarius are : " to guide and promote the elaboration and setting up of definitions and criteria for food, in order to contribute to their harmonization and facilitate international exchanges . Codex alimentarius has a noticeable effect on quality and safety of food around the world ; it has allowed , everywhere, to improve the standards which are applied at different steps of the food chain and to increase a lot the international exchanges .

In the Codex alimentarius, there is high number of committees , i.e. two groups of world committees, one on general problems, the other on food products. There are also some regional committees .

As Food hygienists , you may be experts in many of those groups ; personally , I participated different times in the committee " Food Hygiene" for which USA are the leader .

All committees work in strong collaboration with scientific organizations in order to elaborate standards and recommendations .

As an example , I would like to remember some sentences of one paper written in the "International Journal of Food Microbiology" in 1998 :

" During the 21st session of Codex Alimentarius which was held in Rome, Italy in July 1995, the Commission was invited to adapt as Codex general standards, a number of draft texts submitted at step 8 of

the Uniform Procedure for the Laboratory Codex Standards and related texts – i.e. general standards for contaminants and toxins in foods – methods of analysis and sampling “. Chemical contaminants were considered first but , *when, under CEN collaborative studies were carried out and that precision parameters were introduced into the ISO standards , they have been transmitted to Codex Alimentarius , so creating an international consensus .*

- WHO

WHO is the specialized Agency of United Nations Organization specialized for Health problems and depends directly on the Economical and Social Council of United Nations.

This organization finds its origin in the wars which happened at the end of the nineteenth century ; after the first world war and the epidemic of Spanish influenza, in 1918-1919 (20 millions of deaths), the Society of Nations creates the Committee for Hygiene which can be considered as the embryo of WHO.

The main place is Geneva (CH). 193 member states participate in the work .

The role is multiple : harmonization , classification of diseases , sanitary measures, help to less developed countries, research , prequalification of drugs . Different collaborator centers help WHO in its tasks .

Some of you may have participated in some of the strategic meetings organized by WHO . To give you an idea of the content of such meetings, one of them was organized in February 2001 in order to define the strategic basis of the action of WHO in the field of Food Safety and Risks appreciation , applied to microbiology, chemical contaminants and biotechnologies . One other meeting in which I participated and organized previously concerned the slaughtering plant of the year 2000 ! these are only examples , but they show obviously the place of International cooperation ..

- IUMS

Finally , I would like to say a few words about IUMS (International Union of Microbiological Societies). As you know, there is a national microbiological society in different countries all around the world .

IUMS is one of the 29 Scientific Unions of the International Council of Science (ICSU); it was founded in 1927 as the International Society of Microbiology .

The objectives are” to promote the study of microbiological sciences internationally, initiate, facilitate and coordinate research and other activities which involve **international cooperation** , ensure the discussion and dissemination of the results of international conferences , symposia and meetings and assist the publication of their reports .

A congress is held in a different countries every three years ; the last one was held in 2008 in Istanbul (Turkey) ; the next one will be held in Sappara (Japan) in 2011 .

As I told you previously, liaison with IUMS is one of the topics reported during ISO/CEN meetings ; the reports are presented by Pr Skovgaard from Copenhagen (DK); that is another example of international cooperation in Food microbiology . Of course ,members of IUMS being present in a lot of countries whose development are very different, the communication between countries is of upper importance . Among the IUMS Committees , ICFMH has a special focus on Food safety in developing countries .Moreover, considering the trade between different countries , it seems very important to know about some types of microorganisms which may be unknown in developed countries ...

III- Conclusion

It may be possible to add a lot of examples , as, in Food microbiology , International cooperation is present everywhere from a long time and especially nowadays due to Internet (which was not the case a few decades ago).. We have to be aware of the fact that, as Food microbiologists , we are , “ de facto” submerged” in what we call “ globalization “.. Communicating with scientists from different countries, different continents is really wealth for us ...In that context , I wish you all the best for a fruitful week of International cooperation .