



PRESS RELEASE

5th International Meeting of Mycotoxicology

The numerous and often fatal mushroom poisoning cases registered in 2012 in Italy must prompt national and regional health authorities, environmental research agencies and mycological societies to consider means to set up, coordinate, structure and enhance activities towards a better information among the population aiming at preventing mushroom poisoning.

This is the main message of the round table discussion held as a conclusion of the four scientific sessions of the 5th International Congress of Mycotoxicology (5th CIMT), which took place in Milan on 3-4 December 2012, in the Oberdan Facilities of the Milan Province Administration.

The event, titled “*Mushrooms and health: Public health, clinical, regulatory and control issues related to trade globalization*” and organised by the Mycotoxicology Committee of the Associazione Micologica Bresadola, with the collaboration of the Milan Province Administration and the Poison centre of the Niguarda Hospital (CAV) in Milan, was supported by the Health Ministry, the Environment Ministry (MATTM) and the Environmental Research Agency (ISPRA). This important congress, the fifth in a series of which the last was held in Trento in 2007, dealt with a number of topics, including clinical and modern aspects of mycotoxicology, prevention and control activities by Italian health agencies, consequences of globalization in commercial aspects of mycology, and activities and tasks of the food and health control agencies.

The congress was well attended and the survey carried out by the congress organisers “Alfa Quality” underlined the overall satisfaction of the attendees, among them many health operators, who were also able to earn up to 16 CME credits during the event.

The clinical **mycotoxicology session** dealt mainly with epidemiological and diagnostic issues.

The epidemiology of mushroom poisoning in Italy is still largely unknown, because no mushroom poisoning registry is available at the national level. The CAV Niguarda presented the data available at their hospital, cautioning the audience, however, that the data are limited to a very small part of Italy and not generalizable; in particular, nothing or little is known on the problems arising from the ingestion of mushrooms that have not been checked for their edibility by a professional. Nevertheless, the cases shown reveal the gravity of the situation, with a large number of fatalities and organ transplants needed after mushroom poisoning.

Mushroom poisoning requires the concerted action by the emergency room physician, the toxicologists, the mycologist and the lab technicians in order to provide the best diagnosis and treatment. The session highlighted the profile of these professionals and gave advice on how to improve their education, interaction and activities.

Diagnostic tools discussed included details on the biosynthesis of amanitin and the use of molecular biology methods to detect it, and screening methods that could be used to rapidly detect and identify amanitin in biological samples, thus allowing a rapid therapeutic treatment aiming at decreasing the number of transplant and eventually of fatalities after amanitin poisoning. Several talks by international specialists have highlighted the ongoing research activities on this topic, discussing poisoning cases after ingestion of species of *Amanita* and linking them conclusively with renal insufficiency.

As for the therapy, decontamination with carbon and fluid replacement are still the methods of choice to treat amanitin poisoning, because more effective therapies are still lacking.

The second session – **modern aspects of mycotoxicology** – discussed new aspects of mycological research that are tightly connected with mycotoxicology, i.e. mycotherapy, environmental toxicology and bioremediation.

It is important to approach mycotherapy carefully, evaluating its pros and cons and considering not only the activities described in vitro but also the clinical and toxicological development carried out for each product. Good pre-clinical studies, followed by a sound clinical development, must show the safety and efficacy of all products to be used for the treatment of human and animal diseases. The importance of fungi in medicine is beyond any doubt, but their use should be firmly supported by an evidence-based medical approach.

With regards to bioindication and bioremediation, research has now shown that mushrooms have a clear role in the environment. The human being, interacting closely with the environment and often altering the delicate balance between the different players and variables in it, needs to be aware of this and consider mushrooms in the planning and execution of activities that may influence the environment.

The results of this session are a significant contribution towards a new vision of mycology, and the organisers are proud to have reached this objective in the 5th CIMT. This success has been possible thanks to the great work and enthusiasm by the members of the “Progetto Speciale Funghi” (Fungi Special Project) by ISPRA, who in the last 10 years have worked synergistically with AMB and other research institutes, integrating taxonomy with ecology and other scientific disciplines to achieve a more holistic knowledge of mycotoxicology.

A session was also dedicated to **prevention and control activities of the Italian health agencies and the problems arising from the commercial globalisation**. This important session highlighted the problems linked to the safety of consumers and related to the consumption of mushrooms and mushroom containing products available on the market. Internationally known experts have described all kinds of contaminants present in mushroom products, from biologicals such as the larvae of diptera or arthropods, to bioactive molecules, including nicotin and botulin. With regards to the latter, recommendations on how to deal with mushroom containing products in order to avoid contaminations by *Clostridium botulinus* have been given. An important outcome of the discussion was the need for clear European guidelines on the maximum allowed levels of contaminants in all types of commercial food containing mushrooms.

The **activities of Italian control and inspection agencies** was the topic dealt with in the last session. Here representatives of several Italian agencies, including the Ufficio di Sanità Marittima ed Aerea (USMAF), the Protocollo Operativo del Corpo Forestale dello Stato (CFS) per la Regione Campania and the Nucleo Antisofisticazioni e Sanità (NAS) dell'Arma dei Carabinieri have presented their activities. The issues linked to the import of mushrooms and mushroom products, the collection and marketing of hypogeous and epigeous mushrooms on the territory, and the control of marketed products containing mushrooms have shown that a close collaboration of these agencies with a mycological association such as the AMB is crucial to improve the efficacy of the actions undertaken by the agencies, in particular also by helping in the continuous professional education of the officers active in this field.

Round table on “methods to collect data and to produce better and more complete reports on mushroom poisoning, by compiling information derived from different procedures and data sources”.

The participants have unanimously acknowledged the progress made in several Italian regions by the mycological control agencies, the health authorities and other associations, including the certification of mushrooms to be commercialised, the prevention activities aiming at a better control of mushrooms used for private consumption, the role of the surveillance offices (USMAF) in the control of import products, as well as the establishment of expert mycological control centres. These activities, however, are not well established over the whole Italian territory, and each region (and not all!) has its own organisation. Clear procedures, protocols and guidelines are still lacking and each agency is having its own operational instructions. The interactions between emergency room physician and the other operators on the territory are not or at most ill-defined. Most

inspection and control offices do not regularly collect information on cases and prepare and distribute reports on the activities carried out and the information is rarely transmitted to the authorities.

Mushrooms are regularly consumed by people, therefore their safety is regulated by the Italian law (Reg. CE n.178/2002). All local and national agencies, including DGSAN (Health Ministry), should work together to create a common database on mushroom poisoning, similar to or integrated in the Rapid Alert System for Food and Feed (RASFF) system. The experts feel that a modification of the guidelines on the commercialisation of fresh and conserved mushrooms is needed, as is the revision of the DM 686/96 directive that defines the education needed for a mycologist to be accepted as a controller, to be compatible with the existing EU directives and to provide a better and more complete mycological education. As a conclusion, the experts voice the need for a better national information policy for the prevention of mushroom poisoning, by promoting collaborative projects among national and regional health authorities, the administration bodies of the regions, the poisoning centres, the veterinary and environmental institution (e.g. ISPRA), and all mycological associations and organisation, such as the Associazione Micologica Bresadola.



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