

**UNIVERSITATEA DE MEDICINĂ ȘI FARMACIE**

**“CAROL DAVILA”**

**BUCUREȘTI**

**FACULTATEA DE MEDICINĂ**



**TEZĂ DE ABILITARE**

**REZUMAT**

**“CERCETĂRI PRIVIND DIAGNOSTICUL CLINIC, ANALITIC ȘI  
INTERVENȚIA TERAPEUTICĂ ÎN URGENȚELE TOXICOLOGICE”**

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## **ABSTRACT**

The summary of the habilitation thesis entitled "**Research on clinical and analytical diagnosis, and therapeutic interventions in toxicological emergencies**" summarizes the main scientific, academic and professional achievements, after obtaining the title of Doctor of Medicine. I defended the doctoral thesis in medicine entitled "**Toxicokinetic and toxicodynamic correlations in acute clinical intoxication with organophosphorus compounds**" in 2000.

The habilitation thesis is structured in two major chapters, with subchapters and bibliographic sources.

In the first chapter I described my main professional, academic and scientific achievements.

After my debut as a research assistant in a prestigious medical research institution in the Ministry of National Defense, I followed the hierarchical steps, from resident physician to primary physician. In the field of research, I became a 3rd degree scientific researcher, later managing research in the same institution. As a researcher, I participated annually in research topics, with results presented at national and international scientific events, and scientific articles published in internationally recognized journals.

After completing my doctoral studies, I worked my way up the academic ranks through competition, from teaching assistant in 2003, to lecturer in 2011, and assistant professor in 2022. 10 years after completing my doctorate, I had the chance and participated in a research project in the Postdoctoral School, completed in 2013.

My research in the field of pharmacotoxicology has been extensive, given the multiple challenges in the field of clinical toxicology. Thus, I started with research on the study of clinical polymorphism in acute intoxications, with the Computerized Toxicological Information System project, a project to which I contributed for a period of 5 years. In parallel with this project, I carried out clinical studies on cholinesterase inhibitors, studies that allowed me to complete my doctoral thesis, and later I continued these studies in the field of experimental toxicology, with results that were published in scientific articles, in international journals.

As the phenomenon of drugs of abuse is a global one, with alarming increases from year to year, I participated in studies won through national competitions, as a member of the research team, for clinical research on drugs of abuse, for a period of 3 years.

Clinical trials in research projects won through competition continued, alongside a complex team of clinicians and researchers, pursuing the study of hemostasis disorders in multiple trauma, completed with the development of a diagnostic and treatment algorithm in intensive care units in Romania.

During postdoctoral studies, the 3-year period allowed me, within a multidisciplinary team, the analytical and diagnostic evaluation of the degree of removal, by hemodialysis, of nine heavy metals, some essential, others toxic, in patients with chronic renal failure.

As the pandemic affected all our lives, I participated with a team of surgical professionals in a study on colon cancer in patients that were operated on during that period.

As a result of these studies and research projects, in addition to disseminating the results obtained through publications, scientific articles and presentations at conferences, we received awards and distinctions.

The research activity led to the publication of 10 articles in Thomson Scientific ISI Web of Knowledge indexed journals with an impact factor, as lead author, and 18 scientific articles as a co-author, all of which were published after the completion of the doctoral studies. The performance indicators provided by Web of Science include: Hirsch index 9, 49 publications, 218 cited articles, and 250 citations.

My work will be presented based on research projects I have participated in and impactful articles that are relevant to my career.

Clinical toxicology being a clinical discipline in which emergency therapeutic intervention is dependent on a certainty analytical examination, over time I have been concerned with toxicological diagnostic methods. The entire research activity had the main objectives of identifying and perfecting new certainty diagnostic methods.

The second chapter is dedicated to the milestones of professional, academic and scientific development. In this sense, my objectives will focus on accessing new research opportunities, obtaining the necessary funds for new research projects. The specifics of the toxicology clinic are based on modern methods of analytical diagnosis, modern methods of treatment, and antidotes. All these aspects will require resources and investments in virtual libraries, where modern data will allow us to obtain the latest information regarding the new types of chemical structures identified at international level, their mode of action and the effects they can induce in those who come into accidental or voluntary contact with them. Also, the modern equipment and analytical diagnostic possibilities existing worldwide, and the possibility of accessing funds that allow the purchase of these cutting-edge devices will be the basis for obtaining the highest level results in the field of clinical toxicology.

My goal is to collaborate with specialized research centers from within the country and from abroad, not only through exchange of experience, but also through the development of joint research projects, in which specialists and residents would be involved. Eventually, the research results would be promoted in scientific works published in international, specialized journals.

Regarding the future center of excellence, it is necessary to create multidisciplinary study teams, in order to broaden the horizon of scientific research.

Academic performance will be improved through digitization. The optimal use of smart devices and of the educational platform are desirable goals for the near future. Daily work with students and residents are my priorities both now, and in the future. In this regard, I propose the following, for the development of the educational process:

- organizing sessions of clinical toxicology case presentations, which provide support towards the clinical judgment and therapeutic approach of future doctors;
- digitization, an essential aspect of the educational process, will bring a major contribution to increasing the quality of teaching, thus:
  - the use of smart devices (interactive board) will allow students to make interactive presentations, and bring forth diagnostic and treatment ideas, increasing the quality of the presentation and the ability to understand the particularities of the case;
  - constant use, in the practical training of students and residents, of facilities offered by the simulation center, for the opportunity to develop their practical skills through risk-free maneuvers, but with proven practical efficiency;
  - the use of the digital platform for webinar sessions, aimed at bringing added value to the training process of students and residents
  - video recording and digital transmission of therapeutic procedures will lead to increased understanding of therapeutic mechanisms and therapeutic maneuvers taught during class
- improving the system of teaching by adding other types of acute intoxications to the curriculum, in accordance with the types of substances found on the "toxic chemicals market", especially newly emerging drugs and those that are permanently dynamic

- the organization of student training sessions for the preparation and defense of dissertation theses, so that there is permanent control over the stage of development of these theses and over the preparation of their defense
- the organization of courses for resident doctors regarding novelties in the field of clinical toxicology, and clinical, diagnostic and therapeutic aspects, meant to direct their attention to new possibilities of therapeutic interventions

Another goal of training in the field of forming specialists is underlined by efforts to transform the toxicology clinic into a "**center of excellence**", as it is the only accredited toxicology center in Romania. The advantage of training a sufficiently large number of specialists in this center is the ability to replace the lack of specialists in isolated areas or areas that do not benefit from specialists trained in this field.

Experience exchange programmes with clinical toxicology centers around the world, especially from the countries of, but not limited to, the European Union, will create the framework for a high-performing, specialized training, aiming at excellence.

The last section contains bibliographic references, which generally describe the evolution of my career from a professional, academic and scientific point of view.

This habilitation thesis represents the crowning of my entire scientific activity, since admission to higher medical education until today.