SUMMARY OF HABILITATION THESIS
NOVEL COMPOUNDS WITH BIOACTIVITIES DERIVED FROM 2-(4-R-PHENOXYMETHYL)BENZOIC ACID

SECTION 1. SCIENTIFIC, PROFESSIONAL AND ACADEMIC ACCOMPLISHMENTS

I, the undersigned Carmen Limban, started my teaching and research career in 1991, as Junior Teaching Assistant, position held by competitive examination, at "Carol Davila" University of Medicine and Pharmacy, Bucharest, Faculty of Pharmacy, Pharmaceutical Chemistry Department, and gradually advanced to the Professor position, which I held since October 2013.

The teaching activity includes tutorials, courses, seminars and practical works of Pharmaceutical Chemistry for the IIIrd and IVth year students of the Faculty of Pharmacy.

Lectures are focused on presenting the main medicinal compounds from some drug classes (structure and chemical name, general methods of synthesis, physicochemical properties, pharmacological action, applications and relationships between chemical structure and biological activity).

The main purpose of acquiring theoretical and practical knowledge is to substantiate the concepts related to drugs, on a strong chemical base, explaining the pharmacological activity and enabling the establishment of structure- activity relationships in the main groups of pharmacologically active substances.

A constant concern is the continuous improvement of the curriculum content and teaching material. I participated in the development of textbooks and practical work books for synthesis and analysis of various drugs useful for practical work and license exam and examinations for the title of specialist pharmacist. I am the first author of two monographs and co- author of thirteen books.

After obtaining my Ph.D., I have continued and thorough research in the field of dibenz[b,e]oxepins and I have started the synthesis of novel thiourea derivatives with potential pharmacological activity.

Since 2007 I have started to apply for national research grants, winning as project manager three national projects in different competitions ("Partnership for Synthesizing, Establishing the Physical and Chemical Characteristics and Testing New Thioureides with Potential Anti- Infectious Action"; CNMP no. 41-043, 2007- 2010; "Research Regarding the Synthesis, Physico- Chemical Characterization and Anti- Infectious Activity Testing of Compounds with Tricyclic Structure [6.7.6]"; UEFISCDI no. 42-

095, 2008- 2011; “Complex Studies of the Synthesis, Physical and Chemical Characterization and Testing of the Anti-Parasitic Activity of New Thiourea Derivates”; ANCS no. 378, a bilateral collaboration between Romania and Turkey, 2010- 2011).

I was research project responsible of one national research grant (“Multidisciplinary Research on Anti-Alzheimer Compounds of the NMDA Receptors Antagonists Class, Adamantane Derivatives”, CEEX, Rom. Acad. of Med. Sci. no. 169, 2006- 2008).

After obtaining my Ph.D., I have participated as a team member in other 12 research projects.

The main research directions approached in my studies and projects, illustrated by the resulting publications, presented in this thesis, are:

- the synthesis and physico-chemical characterization of ninety- five new O-acyl-oximino-dibenz[b,e]oxepins 2-R (un)substituted and studying their microbicidal and antipathogenic activity;

- the synthesis and physico-chemical characterization of one hundred seventy- three novel molecules with original structure 2-(((un)substituted phenoxy)methyl)-N-((un)substituted arylcarbamo-thioyl)benzamides, and evaluation of their antimicrobial activity, their influence on the development of microbial biofilms on the inert substratum and on the production of virulence factors, cytotoxicity and studies to obtain functionalized catheter surfaces.

The thesis also includes general aspects concerning the dibenz[b,e]oxepins derivatives with antibacterial activity, and data about antibiotic resistance phenomenon, thiourea derivatives with antibacterial, antifungal and anti- parasitic properties, and metal complexes of the thiourea derivatives with antibacterial and antifungal activities.

After the elaboration of the Ph.D. thesis, my scientific work led to the publication of three patents as first author, 59 scientific articles (30 articles in ISI quoted journals, with 82 ISI/IDB citations, 21 as first author in ISI quoted journals, Hirsh index 7). I have participated with 64 oral communications/ posters in different scientific events.

I am member in the Editorial Board of two journals, Biointerface Research in Applied Chemistry since 2011 (http://biointerfaceresearch.com/journal-info/editorial-board) and Letters in Applied NanoBioScience since 2012 (http://nanobioletters.com/journal-info/editorial-board/).

I received the prize “Young Investigator Award” for my scientific activity at the XIth Congress of Pharmacy of Iaşi (1998), offered by the Gedeon Richter and the CNCSIS prize for two national patents, in 2010.

I am member of national and international scientific societies and reviewer of three ISI/ IDB indexed journals.

SECTION 2. CAREER PERSPECTIVES

Regarding the publication activity, two book titles (one textbook and one monograph) are scheduled to be published in the near future.

The scientific development plans in the domain of pharmaceutical chemistry are focused on obtaining novel biopharmacophore molecules (the synthesis of a novel class, O-alkyl/aryl-(thio)carbamoyl-oximino-dibenzoxepines, the synthesis of new O-acyl-oximino-dibenz[b,e]oxepines, new benzamides, new transition metal complexes of thiourea).

In the future I will use the advantages of microwave method, in the synthesis of the new compounds as it fits into the principles of "green chemistry".

Also, we will study the microbiological properties, the anti- parasitic, the anti- inflammatory and other biological activities of the new compounds and the potential of nanosized materials to improve the antimicrobial activity or to deliver new antimicrobial substances in active forms.