"CAROL DAVILA" UNIVERSITY OF MEDICINE
AND PHARMAC BUCHAREST
DOCTORAL SCHOOL
PHARMACY

PHARMACEUTICAL APPLICATIONS OF COMPOUNDS OF VEGETABLE ORIGIN

SUMMARY OF THE HABILITATION THESIS

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The habilitation thesis titled "***Pharmaceutical Applications of Plant-Based Compounds***" includes the main results of my scientific and teaching activities obtained after defending my doctoral thesis, as well as my plan for developing my academic career in the context of the growing impact of developing new therapeutic solutions for the treatment of infections caused by resistant pathogens.

The first chapter of the thesis focuses on scientific activity and includes the original results of my work conducted after defending my doctoral thesis titled "Development of New Antimicrobial Agents. Studies on the Biochemical Mechanisms Involved in Biological Effects" (2018, Carol Davila University of Medicine and Pharmacy). The chapter describes the main directions and topics addressed, aimed at obtaining enzyme inhibitors with potential therapeutic applications, as well as utilizing plant extracts in various pharmaceutical forms:

- Sortase A enzyme inhibitors
- Bacterial collagenase enzyme inhibitors
- Other enzyme inhibitors with therapeutic potential
- Pharmaceutical preparations with plant extracts for hemorrhoidal conditions
- Pharmaceutical preparations with plant extracts with photoprotective action

Additionally, it presents my personal scientific contributions to other studies that were not my own research topics (development of antitumor drugs, biochemical analyses, obtaining pharmaceutical preparations with inclusion complexes, validation of tests useful in the development of oncological drugs), as well as review studies.

The main research topics were developed within research contracts obtained through competition:

- Project PN-III-P1-1.1-PD-2019-0646, no. PD 184/2020, "Identification of New Bacterial Collagenase Inhibitors as Antivirulence Drugs," funded by UEFISCDI, with a budget of 236,966 RON, duration: September 1, 2020 – November 15, 2022 (PROJECT LEADER)
- Project PN-III-P2-2.1-CI-2018-1124, no. 191CI/2018, "Development of an Innovative Gel Based on Plant Extracts for Hemorrhoidal Therapy," 2018 (member)
- "Net4SCIENCE: Network of Doctoral and Postdoctoral Research in the Fields of Smart Specialization Health and Bioeconomy," code SMIS: 154722, "Study of Associations of Plant Extracts and Photoprotective Agents and Their Formulation in Cosmetic Products," December 2022 – December 2023 (POSTDOCTORAL RESEARCHER)

- Contract 28564/02.10.2023 – IOSUD – Carol Davila University of Medicine and Pharmacy "Studies on Identifying New Plant-Based Therapeutic Agents for Atopic Dermatitis Treatment," October 2023 – October 2025 (POSTDOCTORAL RESEARCHER)

After defending my doctoral thesis, I published 38 scientific papers in the field of the development of new enzyme inhibitors and studies of plant extracts. Of these, 20 are articles published in ISI-indexed journals, with a cumulative impact factor of 67. Ten are articles published in journals indexed in various international databases, and eight are abstracts of papers presented at national and international conferences. The quality and impact of the published articles in my career are demonstrated by a total of 677 citations in articles published in ISI or BDI journals, according to Web of Science, and 693 citations according to Scopus (666 excluding self-citations). The calculated Hirsch index is 11 in Web of Science and 12 in Scopus.

The second chapter of the thesis presents the teaching activities carried out: main teaching responsibilities, teaching materials developed, mentoring students in thesis work and scientific communication sessions, conducted both before and especially after obtaining the title of Doctor of Science. I participated as a co-author in the development of seven specialized books intended as teaching materials, as well as two chapters in editions II-VIII of the "Practice Guide for Fifth-Year Students."

The third chapter outlines my professional journey from graduation to the present. I hold a complementary studies certificate in Homeopathy, am a principal pharmacist in Clinical Pharmacy, and am currently a third-year resident in Pharmaceutical Industry and Cosmetics.

The fourth chapter contains my future objectives for developing teaching and scientific activities within the educational mission of the Carol Davila University of Medicine and Pharmacy. It presents some of the research directions I intend to pursue, plans for developing interdisciplinary collaborations, and the objectives and measures for conducting teaching activities.