Universitatea *Transilvania* din Braşov

HABILITATION THESIS

SUMMARY

Title: Modern psychopharmacology between synthetic products and traditional herbal use and plant supplements - new perspectives in therapy

Domain: Medicine

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The habilitation thesis titled "Modern psychopharmacology between synthetic products and traditional herbal use and plant supplements - new perspectives in therapy" is a synthesis of the scientific, academic and professional activities that I carried out after the PhD thesis presentation in 2012 - "Comparative clinical study of efficacy and tolerability of typical and atypical antipsychotics" under the scientific coordination of Acad. Dr. Victor Voicu. The research approached a field of great scientific and practical interest, schizophrenia and antipsychotic treatment, representing one of the most studied areas of psychopharmacology research, at the time of the PhD thesis realization period, as well as at in present.

The first section of the thesis briefly includes the main outcomes of academic, professional and research activities, including the chronological stages that I have pursued throughout my career, grants obtained through competition, affiliations to scientific societies and published scientific papers.

In **Chapter I** are presented the two main directions of the research activity**. Subchapter I.1** contains the results of scientific researches in the field of psychopharmacology: the evolution of patients under treatment with different antipsychotics, the compliance with the treatment or the evolution of the perception of patients treated with different antipsychotics on the quality of life and its components as well as the satisfaction with treatment. Another issue of major importance for patients treated with antipsychotics and for whom there is a strong global concern is weight gain and the risk of metabolic side effects associated with increased cardiovascular risk and increased mortality in patients with schizophrenia. It has emerged from the studies conducted the need to identify individual strategies for the prevention and management of cardiovascular risk related changes in patients treated with antipsychotics. As a result of the continuation of the research in this direction, I have had the opportunity to develop, in collaboration with experts, leading personalities in the field of psychiatry and antipsychotic therapy (Christoph U. Correll, listed by Thomson Reuters as " the most influential scientific

thinking in psychiatry "2014-2016, Peter Manu, Marc De Hert) the work" Weight gain and obesity in schizophrenia: epidemiology, pathobiology, and management ", published in 2015 in **Acta Psychiatrica Scandinavica**. Following the identification of current clinical and experimental data to understand obesity in schizophrenia, its mechanisms and ways in which this data can contribute to a rational approach, the paper has provided an algorithm for cardiometabolic monitoring and the management of weight gain in patients treated with antipsychotics. Research into schizophrenia has led to the emergence of new theories about its pathogenesis. I studied the existing data and presented these theories as well as the new therapeutic implications, presenting data on phenomena such as apoptosis disorder, neurochemical sensitization, abnormal synaptic selection and alteration of connectivity in schizophrenia.

The second research direction, that of plant food supplements and active compounds in plants is presented in **subchapter II.2**. Much of the research work in the field of herbal food supplements has been achieved during and as a result of participation as a team member in the **FP7 European Project** coordinated by the University of Milan **PLANTLIBRA (*Plant Supplements: Levels of Intake, Benefit and Risk Assessment*)** . The themes addressed were: the use of plant food supplements, the adverse effects of herbal compounds and supplements, their benefits, anti-inflammatory and antioxidant effects of herbal active compounds and the results of the studies were published in two papers in international impact journals such as **Critical Reviews in Food Science and Nutrition**, or **PlosOne**. In the follow-up to the PlantLibra study I was particularly interested in identifying plants with active anti-inflammatory and anti-oxidant compounds, the results of experimental studies that identified such compounds being published in journals such as **Acta Cardiologica** or **Oxidation Communication**, part of this subchapter.

In chapters II and III I presented the evolution and the professional and academic achievements that allowed me to obtain the results underlying this thesis as well as the professional development.

The activity I have carried out so far at the Faculty of Medicine, Transilvania University in Brasov, as a teacher, harmoniously fits in the mission and objectives of the University, both in didactic and scientific plan. At present I am Associated Profesor and since 2015 I have been elected Director of the Department of Fundamental, Prophylactic and Clinical Disciplines of the Faculty of Medicine.

From 2003 until now we have initiated and managed bilateral agreements with over 15 universities in Europe (France, Germany, Italy, Spain, Portugal, Greece, Hungary, Czech Republic, Poland, Turkey) as Erasmus / LLL / Erasmus PLUS Coordinator for the Faculty of Medicine.

The activity of scientific research has materialized through participation in 8 research projects, 4 international and 4 national. I was a Project Director in the Scientific Research Grant in the Medical Field: "Study of Phytoestrogens and Other Plant Extracts Used in Menopause and Related Disorders", funded by DACIA PLANT. I have had the opportunity to demonstrate the personal and professional qualities, teamwork and efficiency in scientific collaborations, as well as to improve these qualities through the experience of working with top international specialists in large-scale research projects, at European level, such as the FP7 PLANT food supplements: Levels of Intake, Benefit and Risk Assessment (PLANTLIBRA).

I have had also the experience of elaborating scientific papers as a result of research in collaboration with leading specialists from the country and abroad and to disseminate the scientific results by publishing 7 chapters, of which 2 in prestigious international publishing houses Springer, Lambert Academic Publishing) and one as publisher, of 15 articles published in ISI-rated international journals with impact factor, of which 9 as the first author, 6 in impact-factor journals ranging from 3.7 to 5.6, which have accumulated a total of over 180 citations, with h-index = 5 in Academic Google and 4 in ISI in the ISI Web of Science.

I am a member of national and international scientific and professional organizations: the Romanian Society of Clinical Pharmacology, Therapeutic and Clinical Toxicology, the Balkan Medical Union, the European Association for Clinical Pharmacology and Therapeutics

(EACPT), the European Behavioral Pharmacology Society, the British Pharmacological Society. As proof of recognition of my international activity and due to my concern and active involvement in academic research and pharmacology education, in June 2017 I was elected in the council of the Education Working Group of the European Clinical and Therapeutical Pharmacology (EACPT).

I activate as reviewer for ISI indexed journals (Schizophrenia Research ISI FI 3,986, American Journal of Therapeutics ISI FI 1.588, Medical Science Monitor ISI FI 1,585) or BDI.

The second section is dedicated to the directions of academic career development and scientific research, based on my scientific experience as well as on the professional experience gained in the field of psychopharmacology and herbal active compounds.

The career development and plans that I have presented in this section provide an overview of ongoing projects and of what I intend to develop in the future. The main areas of research I have been involved with, neuropsychopharmacology and food supplements and herbal active compounds, are the guidelines for the further research directions. Furthermore, findings of previous research involving inflammatory processes and oxidative stress in the pathophysiology of psychiatric disorders and / or the adverse effects of psychiatric drugs on the one hand, and the anti-inflammatory or antioxidant effects of some active compounds in plants, on the other hand, outlined a third direction of research as a linking element between the first two, which is exploration of the therapeutic potential of active compounds from plants in neuropsychiatric disorders. All research has the ultimate goal of improving the quality of life and outcome of patients with chronic neuropsychiatric disorders, a problem that is still far from being solved. As a field with promising perspectives both in theoretical and practical terms, I support the necessity of its development and the formation of young researchers in the field, in order to ensure continuity.

The third section contains bibliographic references used to integrate the research activities described in previous sections.