

14. PLANT PRODUCTS GEMMAE - SOURCES OF ACTIVE PRINCIPLES

Macari Gheorghe

Scientific adviser: **Calalb Tatiana**, Doctor of Biology, Professor, Department of Pharmacognosy and Pharmaceutical Botany, State University of Medicine and Pharmacy "Nicolae Testemițanu", Republic of Moldova

Introduction: Gemotherapy is based on using the so-called "stem cells", which are embryonic plant tissues, namely young parts that hold the regenerating power of the plant. Plant products used as sources of active ingredients with valuable therapeutic qualities are buds, branches, internal bark or root bark of young branches, sap, seeds germinated and young seedlings. Bioactive complex of these plant products can quickly intervene in human metabolism, producing series of reactions at the molecular and cellular level of eliminating foreign substances that help detoxify the locked cells (based on the specific action of certain organs) and resume their functionality. Use of gemoderivates shows a gentle therapy, with a deep action and without negative consequences. Classical gemmotherapy was initiated by Belgian doctor Pol Henry (in 1950), which has withstood time and in the last decades show a rising interest.

Purpose: Qualitative and quantitative analysis of flavonosids and tannins in buds *gemmae* of woody plants.

Materials and Methods: As a biological material for chemical study served buds of horse chestnut trees, walnut, white birch, white poplar and cherry. Flavonosids qualitative study was conducted by applying color or precipitation reactions and quantitative- spectrophotometer. Qualitative analysis was performed by tannins specific reaction on TLC, here quantified by titrimetric method.

Results: The result of the chemical study of flavonosids in plant products *gemmae* of *Aesculus hippocastanum*, *Juglans regia*, *albosinensis Betula*, *Populus alba*, *Prunus avium* established the presence of the following constituents flavonoids. In the result of qualitative reactions we determined the presence of flavones, flavonols, flavanols, anthocyanins, aurons and chalcones in *Pv gemmae*. The spectrophotometric study of flavonoids shows that the maximum content belong white poplar buds-7.208 %, then decreasing at Walnut - 6.808 %, cherry-3,508 % horse chestnut-2.912 %, white birch-2.746 %, birch-2.220 %. The specific reactions for tannins identification demonstrate the presence of condensed tannins and hydrolyzable tannins in buds. The titrimetric dosage denotes the presence of a high content in analyzed buds, most being in the horse chestnut buds (20.541 %), followed by the walnut (15.406 %). The cherry buds contain (9.928 %), followed by white poplar buds (6.847 %) and white birch (6.505 %) and the lowest content of tannins have the buds of white birch (2, 326 %).

Conclusions: Thus, the analyzed buds besides the specific biocomplex conditioned by the presence of specific meristematic tissue may also contain large quantities of tannins and flavonosides with valuable therapeutic qualities. The buds represents a complex biological entity, in which is realized a synergy of the components in the human body.

Keywords: gemotherapy, meristems, flavonosids, tannins

15. NEW VEGETABLE DRUGS GEMMAE - SOURCES OF ACTIVE PRINCIPLES

Macari Gheorghe, Calalb Tatiana

Public Institution State University of Medicine and Pharmacy "Nicolae Testemițanu", Chișinău, Republic of Moldova

Introduction: Gemmotherapy is based on using the so-called "stem cells", which are embryonic tissues, namely young parts that hold the regenerating power of the plant. Buds, branches, internal bark of roots or bark of young branches, sap, germinated seeds and young seedlings represent a valuable source of active principles with important therapeutic qualities. Bioactive complex of these vegetable drugs quickly intervenes in human metabolism, producing series of reactions at the molecular and cellular levels, participating in evacuation of toxic substances. These processes help to detoxify the locked cells (based on the specific action of certain

organs), that permit to resume their functionality. Using of gemmoderivates shows a gentle therapy of a deep action and without negative consequences. Gemmotherapy was initiated a long time ago (XIV-XV century), but classical one founded by Belgian doctor Pol Henry in 1950 during the last decades shows a rising interest.

Purpose: Qualitative and quantitative analysis of flavonoids and tannins in buds of some woody plants.

Materials and Methods: As a biological material for chemical study served buds of horse chestnut tree, walnut, white birch, white poplar and cherry tree. Qualitative study of flavonoids was conducted by applying color or precipitation reactions and quantitative – spectrophotometry method. Qualitative analysis of tannins was performed by chemical specific reaction and thin layer chromatography and quantitative one by titrimetric method.

Results: The analyses of the qualitative study of flavonoids in the vegetable drugs *gemmae* of *Aesculus hippocastanum*, *Juglans regia*, *Betula pendula*, *Populus alba*, *Prunus avium* established the presence of the following flavonoids constituents: flavones, flavonols, flavanonols, anthocyanins, aurons and chalcones. The spectrophotometric study of flavonoids shows that the maximum content belong to white poplar buds – 7.208%, then decreasing in the buds of walnut – 6.808% , cherry tree – 3.508%, horse chestnut – 2.912% , white birch – 2.746%, and in the catkins of white birch – 2.220%. The specific reactions for tannins identification demonstrate the presence of condensed and hydrolyzed tannins in analyzed buds. The titrimetric dosage of tannins denotes the presence of a high content in analyzed buds, the most being in the horse chestnut buds (20.541%), followed by the walnut (15.406%). The cherry buds contain – 9.928%, followed by the white poplar (6.847%) and white birch buds (6.505%). The lowest content of tannins has the catkins of white birch – 2.326%.

Conclusions: The analyzed buds also contain large quantities of tannins and flavonoids with valuable therapeutic qualities besides the specific biocomplex conditioned by the presence of specific meristematic tissue. The buds represents a biological complex entity, in which is realized a synergy of their components in the human body.

Keywords: gemmotherapy, meristems, flavonoids, tannins

16. DEVELOPMENT AND VALIDATION OF THE UV SPECTROPHOTOMETRIC METHOD FOR ANALYSIS OF ETHANOL SOLUTION OF ISOCONAZOL NITRAT

Matasari Marcela, Valica Vladimir, Macaev Fliur, Podgornii Ana

Pharmaceutical and Toxicological Chemistry Department, State University of Medicine and Pharmacy “Nicolae Testemițanu”, Chișinău, Republic of Moldova

Introduction: The high prevalence and the constant increase of incidence of skin fungal infections and its annexes causes a continuing interest for the analysis and standardization of antifungal agents.

Purpose and objectives: Validation of UV spectrophotometric method for analysis of nitrate Isoconazole obtained through original from synthetically imidazole ionic liquids.

Materials and methods: Reference study (articles of journals, periodicals, European Pharmacopoeia). The object of the research was the sample of Isoconazole nitrate, synthesized in the Laboratory of Synthetic Organic Chemistry Institute, Academy of Sciences of Moldova. Instruments: UV Visible Spectrophotometer (Agilent 8453); electric balance (OHAUS).

Results: The Isoconazole nitrate solution spectrum shows the well-defined spectral absorption maximum between 274 nm and 282 nm. Ethanol shows absorption maxima at other wave lengths. So it can be used as a solvent. According to the calibration straight lines, a better linearity shows the data taken at λ 274 nm. In the concentration range 50-150 mg / mL, the relative standard deviation is 0.22% maximum, which is equivalent to a very good accuracy of the method.

Conclusion: According to the results of the study, the UV spectrophotometric method was validated. It allows the quantitative determination of the nitrate Isoconazole in ethanol solution. This method is rapid, requiring small amounts of reagents, providing accurate and reproducible data.

Keywords: Imidazole derivatives, isoconazole nitrate, UV spectroscopy