

of standard solutions must be prepared in order to calibrate the response of the instrument. This method it was used for the determination of the calcium in some fresh citrus juices, as it is difficult to determine it using other methods, because of the presence of other elements and organic compounds.

**Materials and methods:** Orange, lemon, mandarin and grapefruit fresh juice, balance, juice extractor, atomic absorption spectrometer Thermo Scientific ICE 3000, centrifugal, vacuum filtration set, pH meter, laboratory glassware, chemical reagents prepared in accordance with requirements of RF X.

**Results:** Calcium absorbs strongly at 239.9 nm and 422.7 nm. This property allows us to determine the concentration of the calcium atom in a such complex mixture like the citrus juice. The method of Atomic Absorption Spectroscopy uses the light of the desired wavelength which passed through the flame containing the atomized analyte. For the determination of samples were diluted and for avoiding the partial ionization in the acetylene flame the lanthanum chloride was added to samples. The calibration curve was established and then the elemental calcium was determined. The analysis was made in series of three replicates for each fruit juice and showed us these results: in orange juice – 30 mg/100 ml, tangerines – 35 mg/100 ml, grapefruit – 84 mg/100 ml and lemon – 34 mg/100 ml.

**Conclusions:** It was determined the total calcium from fresh citrus juices. The obtained results would be used for the benchmarking of ionic calcium with the total one. The applied method was efficient, sensible and precise, relative error having an acceptable value.

**Keywords:** Atomic Absorption Spectroscopy, calcium, citrus juice, absorbance.

## PHARMACEUTICAL BIOAVAILABILITY OF COMBINED OINTMENTS WITH IZOHYDRAFURAL AND METHYLURACIL

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**Introduction:** A difficult problem in the human pathology is the purulent infections due to the necessity of taking several drugs for a complex action such as: antimicrobial, regenerating, anti-inflammatory and analgesic. It is actual the elaboration of a new formulation for external use - combined ointment with izohydrifural and methyluracil, which combines the antibacterial action of izohydrifural and the regenerating and antiinflammatory actions of methyluracil.

**Materials and methods:** In research it was used the active substances: izohydrifural, methyluracil and excipients: polyethyleneglycol 400, vaseline, stearyl alcohol, cetyl alcohol, propyleneglycol, glycerin, tween 80, sodium laurilsulphate. Also, in research it was used the device Erweka USP for the dialysis method, UV-VIS spectrophotometer Agilent-8453, Milipore membrane 0,22 mm and dimethylformamide as dissolution medium.

**Results:** First of all it was elaborated the optimal formulation and the manufacturing technology of combined ointments. It was used different excipients, obtaining four models of combined ointments with concentrations of 0,1% for izohydrifural and 5% for methyluracil. Pharmaceutical availability of active principles from ointments was determined by the method of dialysis membrane. It was respected the conditions of method: 50 ml dimethylformamide - as dissolution medium, the temperature -  $37\pm 1^{\circ}\text{C}$ . From the obtained dialysate, it was dosed the active substances by UV-VIS spectrophotometric method: izohydrifural at wavelength 373 nm and methyluracil at 267 nm. From the results, it was established that the maximum of disposal speed of active substances occurs in composition containing polyethylenegly-

col 400, stearin alcohol, glycerin, sodium lauryl sulphate, purified water. Also, it was assayed the dissolution rate constant ( $K_d$ ) and half-life time ( $T_{50\%}$ ) for all four compositions. It was established that the highest value of the dissolution rate constant has the same ointment containing polyethyleneglycol 400, stearin alcohol, glycerin, sodium lauryl sulphate and purified water. For izohydrofural -  $K_d = 0,018 \text{ min}^{-1}$  and for methyluracil -  $K_d = 0,064 \text{ min}^{-1}$ . At the same composition of ointment was determined the smallest value of half-life time of 38,5 minutes for izohydrofural and half-life time of 42,2 minutes, respectively for methyluracil.

**Conclusions:** It was concluded that the best pharmaceutical bioavailability of active principles from the four compositions of ointments resulted at ointment containing polyethyleneglycol 400, stearin alcohol, glycerin, sodium lauryl sulphate and purified water.

**Keywords:** izohydrofural, methyluracil, pharmaceutical bioavailability, dissolution rate constant, half-life time.

## MODERN ASPECTS OF PHARMACOTHERAPY OF HEART ISCHEMIC DISEASE

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The heart ischemic disease is a major medical problem of our century. In all its manifestations, it affects the most active age groups, leads to a temporary or permanent disability cases and sometimes to a sudden death. Over the past 4 years 17, 3 million people died from cardiovascular disease, which accounted for 30% of all mortality cases in the world. In Moldova (2010) the mortality rate from cardiovascular disease was 56.2% where 41% is due to heart ischemic disease.

**Purpose:** To display the modern aspects of pharmacotherapy of heart ischemic disease.

**Objectives:** To analyze and explore the modern pharmacotherapy of heart ischemic disease.

**Materials:** Case reports of patients who were hospitalized in the department of chronic heart failure in Moldavian Scientific Research Institute of Cardiology during the period from November 2011 to January 2012. Methods: T- student, IBM SPSS Statistics.

**Results:** The heart ischemic disease is more common in people older than 65 years; more susceptible were urban residents (55.56%), 44.44% - were rural. 37,04 % are women, 62,96 % - were men (the total quantity of patients are 54). 49 patients (90.74%) were prescribed organic nitrates, 31 patients (57.41%) - beta-blockers, 49 patients (90.74%) - diuretics, 45 patients (83.34%) - antiplatelet therapy, 11 patients (20.37%) - cardiotonics, 19 patients (35.19%) - calcium channel blockers, 26 patients (48.15%) - anticoagulants.

**Conclusions:** It should be noted, that modern medicine has a wide range of antianginal drugs (organic nitrates, beta-blockers, diuretics, antiplatelet agents, cardiotonics, calcium channel blockers, etc.), enabling to prevent complications of heart ischemic disease, to prolong life and to improve its quality.

**Key words:** modern pharmacotherapy, organic nitrates, beta-blockers, diuretics, antiplatelet agents, cardiotonics, calcium channel blockers, angina pectoris, cardiac accident.