50% of the patients have an aggravated hereditary anamnesis. We studied the genealogical trees of the patients; we found out that: in 25 families of 2 and more relatives (gr.l and ll) with cancer (thyroid, colorectal, breast, ovarian, malignant melanoma cancer) and thyroid nodular pathology.

Conclusions. From the point of view of molecular and genetic side, PTC is heterogeneously and it needs new approaches of genetic modifications in clinical practices. The proportion of patients with cancer is increasing with age, aggravated hereditary and personal anamnesis. It is necessary to introduce screening by genetic exam for high-risk patients.

Key words: Papillary Thyroid cancer (PTC), genetic modifications, genetic testing, screening, mutations

DEPARTMENT OF MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY

323. CYANOBACTERIA PIGMENTS: POTENTIAL ALTERNATIVES AGAINST ANTIBIOTIC-RESISTANT BACTERIA

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Introduction. The increasing number of multidrug-resistant bacteria in the last decade has left clinicians with very few medication options, usually resulting in the use of more expensive treatments. The demand of new therapeutic approaches encourages the discovery of new natural products with possible antimicrobial activity.

Aim of the study. Therefore, the aim of this study was to look for active substances that could be used as antibacterial agents. To achieve this objective, two different fractions (myxoxantophyll and phycocyanin) from *Spirulina platensis* were investigated. Myxoxanthophyll is a carotenoid glycoside yellowish pigment present in the photosynthetic apparatus of *Arthrospira (Spirulina) platensis* and phycocyanin is a protein complex, accessory pigment to chlorophyll also present in *Spirulina platensis*.

Materials and methods. The cyanobacteria extracts were tested *in vitro* for their antibacterial proprieties against (*Acinetobacter baumannii*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Staphylococcus aureus* and coagulase-negative staphylococci) using macro dilution method Ericsson and Sheris. The Time-kill kinetics assay (CLSI M26) was used to study the bactericidal activity of the *Spirulina platensis* extracts against bacterial strains over the time.

Results. By means of the broth macro dilution assay, it was found that microalga extracts possess pronounced antibacterial activity against *Acinetobacter baumannii* (MIC: 0,0275 mg/ml for myxoxanthophyll and 0,18 mg/ml for phycocyanin). In the case of coagulase-negative staphylococci the antimicrobial activity of *Arthrospira platensis* fractions was low. Gram-negative bacteria showed to be more sensitive to the action *Spirulina platensis* pigments than Gram-positive bacteria. Also, it was found that myxoxanthophyll possess bacteriostatic and bactericidal action at a lower concentration than the phycocyanin. At a concentration of 0,04 mg/ml myxoxantophyll could kill 100% bacteria in approximately 4 hours, and the time-kill for phycocyanin was about 8 hours at the concentration 0,72 mg/ml.

Conclusions. Further in vivo studies are required to investigate *Spirulina platensis* fractions potential toxic effects. In particular researches are needed to evaluate the use of control-release formulations in order to maintain the *Arthrospira platensis* pigments concentrations at antibacterial active doses.
Key words: Antibacterial resistance, reducing pathogens, *Spirulina platensis*, organic antimicrobials

324. INTERFERONS. UTILIZATION IN ANTIVIRAL THERAPY

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Introduction. IFNs are a class of soluble glycoproteins with a strong antiviral activity, classified into three types: Type I (IFN-α/β), II (IFN-γ) and III (IFN-λ). Because of the clinical failures using only antiviral medications and the generation of drug-resistant strains, IFN treatment became a good option because it targets the host's immune response and not the specific viral proteins.
Aim of the study. Study and analysis of existing data in the literature on antiviral activities of IFN and their use in antiviral therapy in human diseases.
Materials and methods. The presentation represents a literature review based on previously completed research into the role of IFN in the treatment of viral diseases.
Results. Because of their ability to modulate immune responses, IFNs have become attractive therapeutic options in controlling chronic viral infections. Type I IFNs were part of standard treatment for VHC and VHB infections and no IFN-resistant viral subpopulations were observed. In addition, there is an increased interest in testing the antiviral efficacy of type III IFN in HCV infection, based on the fact that the type III IFN receptor is more restricted in its expression and is present on the hepatocytes. IFN-γ combined with highly active antiretroviral therapy (HAART) dramatically reduced morbidity and mortality associated with HIV, being used successfully in treating opportunistic infections associated with HIV.
Conclusions. Although they are effective, IFNs need to be used with caution, because they are powerful cytokines that affect a wide range of cells; as a result, patients usually had side effects and a part of them had systemic effects.
Key words: Interferons, type I IFN, type II IFN, type III IFN, antiviral therapy.

325. HELICOBACTER PYLORI INFECTION. DIAGNOSTICS METHODS

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Introduction. More than half of the adult global population are carriers of *H.pylori*, a Gram-negative microaerobic human pathogen, which is associated with various gastroduodenal diseases. Diagnostic tests are divided into noninvasive (UBT, SAT, serology) and invasive