

metabolites, etc. In the diagnosis of breast cancer, we have highlighted a number of new markers such as hsa_circ_0001785, lncRNA HOTAIR, GATA 3, specific plasma lipid profile according to tables and a large miRNA panel. Pancreatic tumors due to asymptomatic evolution, require screening by risk groups, therefore the new markers periostin and circ-LDLRAD3 RNA complement CA19.9 in early diagnosis, especially in PDAC. The long known pyruvate-kinase M2 is determined to be effective in determining the prognosis in pancreatic cancer and EphA2 represents a diagnostic marker but also a therapeutic target. A number of metabolites are capable of differentiating chronic pancreatitis from pancreatic cancer. In the diagnosis of colorectal cancer, was developed a set of 16 RNAs that determine the tumor in its early stages. Likewise, the combination of eight serum biomarkers (CEA, CA19.9, AFP, Galectin3, TIMP1, ferritin, CRP, CyFra 21-1) allows efficient and rapid diagnosis.

Conclusions. Population studies in different countries and by different scientists have shown that biomarkers and biomarker panels studied allow early, rapid, specific diagnosis of the tumor pathologies. Diagnosis based on these tests will reduce the invasive diagnostic procedures and increase the survival rate due to personalized and specific treatment for each tumor. They also allow subsequent monitoring, relapses and prognosis.

Key words: tumor biomarkers, liquid biopsy, colorectal cancer, breast cancer, pancreatic cancer.

291. GLUTEN CAUSE OF OCCURRENCE CELIAC DISEASE

Author: **Anastasia Cherdivara**

Scientific adviser: Ala Fulga, PhD, University assistant, Department of Biochemistry and Clinical Biochemistry, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova

Introduction. Gluten is a nutritional term used to refer to certain cereal prolamins, rye, barley and oats. It refers to the combined gliadin (prolamin) and glutenin fraction of wheat and displays unique structure building properties, three-dimensional protein network-forming properties being utilized in baking applications to create viscoelastic dough matrices, includes water binding and viscosity yielding, which make gluten a widely used food additive. They are highly resistant to hydrolysis mediated by proteases of the human gastrointestinal tract. Large gluten peptides as gliadin escape gastric digestion and accumulate in the small intestine. These characteristics could help in breaking the tolerance to this food antigen, when the immune system is activated, as can happen during an enteric infection, affect the intestinal permeability and modify the gut microbial activity. Undigested gluten containing carbohydrates entering the colon may be digested within the colon by the colonic bacterial flora, leading to fermentation and an increased in colonic gas, causing bloating and excess flatus. Celiac disease (CD) is a common immune-mediated enteropathy, which occurs following exposure to gluten in genetically susceptible individuals.

Aim of the study. The purpose of the study is to determine the link between gluten and celiac disease by studying the protein properties of gluten.

Materials and methods. The study was performed on 7798 persons aged 6 years or older. Serum samples from all participants were tested for immunoglobulin A (IgA) tissue transglutaminase antibodies. Based on the results about prior diagnosis of CD and use of a gluten-free diet (GFD). CD was defined as having either double-positive serology or other health-care professional and being on a GFD (reported clinical diagnosis of CD).

Results. CD was found in 35 participants, 29 of whom were unaware of their diagnosis. Median age was 45 years (interquartile range 23-66 years), 20 were women, and 29 were non-Hispanic white. Clinical presentation CD is diagnosed more frequently in women with a female-to-male ratio ranging from 2:1 to 3:1. However, based on serological screening, the actual female-to-male ratio is 1.5:1. The prevalence of CD in the United States was 0.71% (95% confidence interval (CI), 0.58-0.86%), with 1.01% (95% CI, 0.78-1.31%) among non-Hispanic whites. In all participants reported following a GFD, which corresponded to a prevalence of 0.63% (95% CI, 0.36-1.07%).

Conclusions. The number of people diagnosed with gluten intolerance is increasing. Most cases were undiagnosed. CD was rare among minority groups. Thus, there is a need for more effective and novel approaches to treat gluten-related disorders. Therefore, by understanding principal properties of gluten open some possibilities for therapeutic approaches.

Key words: gluten, celiac disease (CD).

292. ANTIOXIDANT ACTIVITY OF *TARAXACUM OFFICINALE*

Author: **Ala Fulga**

Co-author: Valeriana Pantea

Scientific adviser: Olga Tagadiuc, MD, PhD, Associated professor, Head of Department of Biochemistry and Clinical Biochemistry; Mihai Todiraş, MD, PhD, Professor, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova

Introduction. *Taraxacum officinale*, considered a weed in many crops around the world, is regarded as a fully nontoxic and entirely edible plant. The chemical composition of plant (flowers, leaves, roots and latex) has been studied extensively due to its biological actions: antioxidant, anti-inflammatory, anti-carcinogenic, anti-hyperglycaemic, anti-thrombotic, antimicrobial and antiviral.

Aim of the study. To establish the optimal conditions for the extraction of the bioactive compounds from the *Taraxacum officinale* leaves and their characterization (study of the physical-chemical and biological properties).

Materials and methods. The process of extraction from the investigated vegetal material has been realized by using the maceration during 24 hours. The extraction has been realized at a room temperature in three consecutive steps for each method using as a solvents: 80%, 50%, and 20% of ethanol. The antioxidant properties of the obtained extracts was investigated by the ABTS (2,2-azinobis-(3-ethylbenzothiazoline)-6-sulfonic acid) method described by Re et al., with some modifications. The results were expressed as percent inhibition of the ABTS radical. Trolox (6-hydroxy-2,5,7,8-tetramethylchroman-2-carboxylic acid) and Rutin (Quercetin-3-rutinoside hydrate; Sigma-Aldrich) was used as antioxidant standard.

Results. The highest antioxidant properties in the leaves of *Taraxacum officinale* showed the extraction with 80% EtOH, at concentrations of 1.25, 0.63 and 0.31 µg/ml, the inhibition percentage in the ABTS test was: 93%, 77% and 48%, respectively. The lower inhibition activity was observed with 50% EtOH extract at concentrations of 4.69, 2.34 and 1.17 µg/ml, the inhibition rate was 95%, 94% and 94%. A similar ABTS radical inhibition activity also showed the 20% EtOH extracts, which at concentrations of 4.38, 2.19 and 1.1 µg/ml, showed an inhibition rate of 95%, 94% and, respectively, 81%. The biologically active compounds extracted from the leaves of *Taraxacum officinale* more effectively capture the ABTS radical compared to the reference substances - Trolox and Rutin. Thus, Trolox and Rutin at