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Introduction

One year ago, I felt that I could write for Позитрон (Positron). It was rather courageous of me because I had only one text in my head.

Thanks to my colleagues, Ana-Andrea Holik, Danijel Jakovljević, Anđela Stamenković, Anđela Kostić, Luka Mutić, but also Anđela Stojanović and Ljubica Velaga, I had a wonderful year! We made all of those texts and interviews together. I have enjoyed every offline and online meeting that we had – you are a well of creative ideas!

We have to thank the Faculty's Management and Students' Parliament for cheering and holding our backs. For delivering our ideas to you via the Faculty site and Repository, Srđan Pokorni and Ana Đorđević are thankworthy.

By now, you are asking yourselves why we published this issue in English. Lately, we met a lot of non-Serbian speaking friends. This issue is for you, our dear readers from around the world – beyond Serbia.

We made sure to focus on inspirational young chemists from Serbia. You can taste a bit of some conferences and excursions that you might have missed.

The exam season is coming, so we tried to present to you our lovely Library. Other than that, we asked our laboratory technicians to share an anecdote or two with us.

Are you struggling in any way during the semester or while preparing exams? You aren't the only one, so find help or a friend on time.

We write about things that we would like to read about, but nobody else is writing.

Remember, when you say "someone should take care of that", ask yourself if you are not someone.

Slađana Savić
Editor-in-Chief

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Impressum

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Clinical metallomics – complex analysis in short

Metallomics today occupy a central place in the –omics sciences, because of the primary or secondary role of trace metals in almost all physiological processes. Metallomics involves the analysis of “metallome”, which includes the determination of a large number of metals/elements of interest.

When metal concentration is determined in clinical samples or biological materials, then we speak about **clinical metallomics**.

Today, the importance of clinical metallomics is great, since the advanced development of analytical techniques and biochemistry has contributed to a more reliable insight of metallomical changes in pathophysiological processes.

The primary goal of clinical metallomics is to highlight the pathogenesis of various diseases, primarily metal-induced oncogenesis malignant disease (initiation phase of **cancer development**). The analysis of (ultra) trace elements in non-keratin tissues is essential, since this type of tissues can provide confidential information on the long-term exposure of metals in the human body and set the precondition for disease etiopathogenesis.

However, for a reliable understanding of the metallomical profile, it is necessary to extend the analysis of clinically-important trace metals in body fluids (whole blood, serum or plasma, and urine).

The **chemometric analysis** of a representative number of clinical samples can further lead to reliable conclusions about the pathologic condition examined.

In cooperation with the **Clinical Center of Serbia**, University Belgrade – **Faculty of Medicine** and University of Belgrade – Institute for Biological Research „**Siniša Stanković**“, our research today includes optimization of techniques based on inductively coupled plasma (ICP), as well as the development of new analytical methods for the speciation of inorganic and organometallic species.

Also, our research includes monitoring of the effects of free metals and nano-bound metals in regard to poisoning. Additionally, we are focused on studies of metabolomics of metals *in vivo* and *in vitro* conditions (toxicological and pharmacological significance), development of clinical metalomics.

An important part for the Serbian population is the consideration of the status of radioactive metals, particularly the status of uranium’s harmful effects on the environment and human health.

Dr. Aleksandar Stojsavljević
Prof. Dr. Marija Gavrović-Jankulović
Prof. Dr Dragan Manojlović



ICP-MS (PH: web.uri.edu)



(PH: med.bg.ac.rs) University Belgrade – Faculty of Medicine

The 7th Conference of the Young Chemists of Serbia and 10th Birthday Celebration

On a Saturday, the 2nd of November 2019, hallways of the Faculty of Chemistry were turned into exhibition space as 108 posters were displayed. In addition to that, in amphitheater 20 oral presentations were held along with plenary and invited lectures and one amazing workshop. Now that you've been bombed with this information, let us explain it all a little bit more.

This conference was organized by **Serbian Young Chemists' Club** with Serbian Chemical Society for the 7th time.

As it was mentioned in the opening ceremony, the aim of the Conference was to present the results of young chemists from Serbia and the neighboring countries in the fields of chemistry, chemical technology and metallurgy.



Jelena Lazić



Vuk Filipović

For our magazine, **Vuk Filipović**, member of the organizing committee, shared his opinion on importance of the conference for the young researchers:

Years ago, we felt there was a need for space, where young people from Serbia could present their work. That includes results from summer internships, undergraduate and graduate theses and, of course, doctoral dissertations. The original idea of giving young people the chance to, for the first time, display their work and practice presenting in English, remains the main priority of the Conference.

The Conference was officially opened by the chair of Serbian Chemical Society Prof. Dr. **Vesna Mišković-Stanković**. As the day went by, the visitors had the opportunity to participate in combination of poster sessions and oral sessions with lectures from special guests.

Plenary lecture was held by Dr. **Marijana Ponjavić** (University of Belgrade – Faculty of Technology and Metallurgy). Two invited lectures were held by Dr. **Života Selaković** and Dr. **Dušan Malenov** (both from University of Belgrade – Faculty of Chemistry).

Antonio M. Rodríguez García, chair of the European Young Chemists' Network (EYCN) was a special guest at this conference and in charge of a workshop.

A new record in the number of applicants was set this year, so the organizing committee had to extend the application deadline. This meant that the jury had a tough job choosing the best among so many hardworking young chemists. The awards were provided by EYCN along with Evonik Industries AG and Serbian Chemical Society.



Antonio M. Rodríguez García



Poster Session

Interview with Antonio M. Rodríguez García (Spain), a chairperson of the European Young Chemists' Network (EYCN)

We got a chance to talk with both **Prof. Chem Chicken** and Antonio, after their presentation of the EYCN activities.

P: Can you tell us something about EYCN?

A: Basically, we are European Young Chemists' Network, within the EuChemS (European Chemical Society). This organization assembles all the different societies along the countries in Europe. And we try to help you guys. We always promote projects that different societies organize in order to reach young divisions in each country.

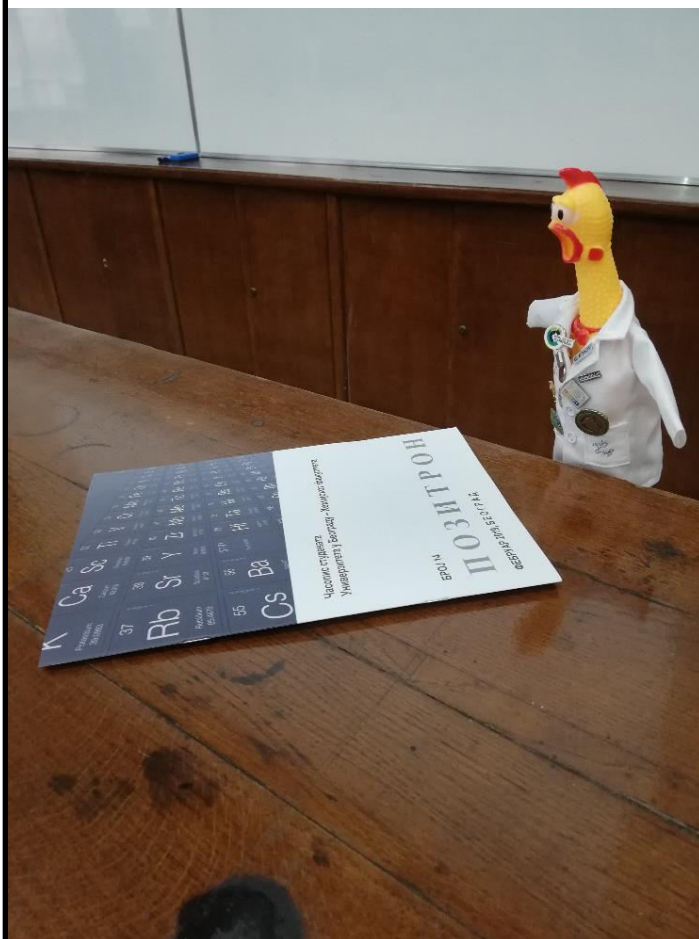
This is not an easy task, because there are a lot of differences between the countries – some countries have really strong societies, which do a rather great job, like in Germany, UK or Italy. But then, other places, for example, Spain, which is surprising, sometimes do not contribute like other. Although, in general, from my perspective, I think it is improving.

P: Internet is bringing us together, isn't it?

A: That's right. I think the old people have realized that we (young chemists) have the power of the future, so they have to take care of us and to help us to promote science and to reach to younger generations.

P: Is this your first time in Serbia?

A: Yes, I am here for the first time. I really enjoyed giving that presentation. Being in Belgrade is great.



P: Have you met any other students' magazines like Positron?

A: At the moment, we have a **newsletter**. And in the science team of EYCN, there are some ideas to make a blog or an interactive section, where people can write a post about science and chemistry. Currently, we are developing this idea.

P: And how about national societies and their students' magazines?

A: For sure, big societies have some sort of a journal, which they distribute among their members, but young editions are rare, you don't see those that much.

P: Do you have a message for our readers?

A: If you want to know anything else about EYCN, follow us on social media (**twitter, instagram facebook, youtube**). Also, make sure to follow prof. Chem Chicken.

S.S.



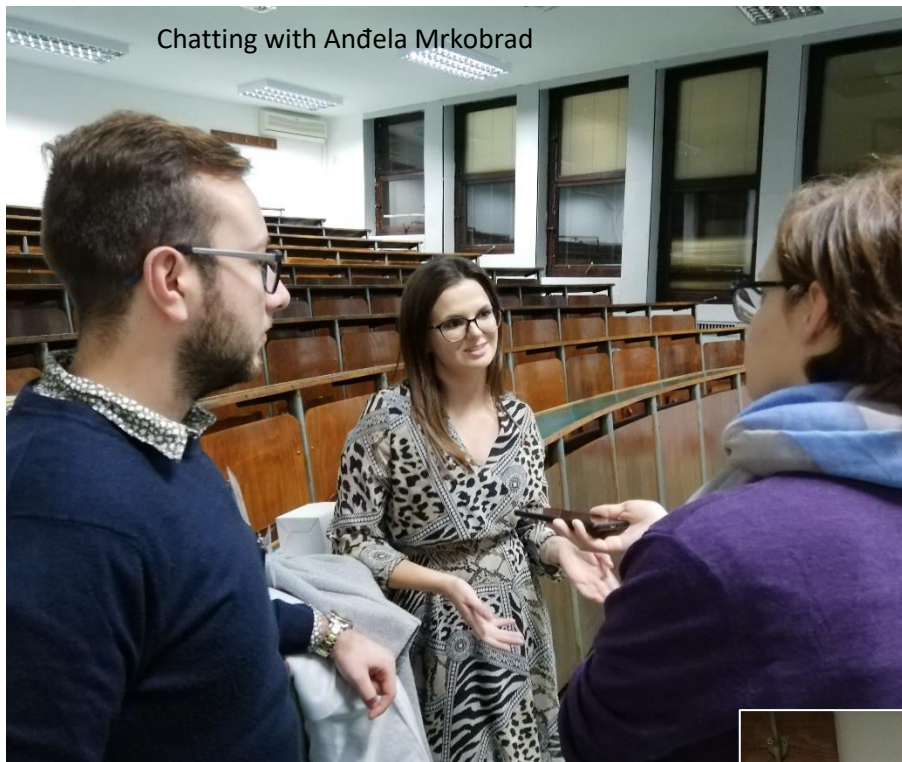
The award for the best oral presentation was given to **Andela Mrkobrad** from University of Novi Sad – Faculty of Sciences. The title of her presentation was „Synthesis and characterization of new cadmium(II) complexes with 2-acetylpyridine-aminoguanidine“.

The award for the best poster presentation went again to University of Novi Sad, this time to the hands of **Jovana Tubak**, also from Faculty of Sciences. The title of her presentation was „Influence of the ionic liquids based electrolytes on the tomato growth, development and oxidative stress“.



Filipović explained what the criteria were: The jury is judging based on how well one presents the results, how well they can showcase their work and the idea behind it, in a very limited timeframe and using English language. In other words, it is important for presenter to be highly concise.

Chatting with Anđela Mrkobrad



Anđela Mrkobrad is a biochemist, but she wanted to mix inorganic chemistry with biochemistry for her bachelor thesis. Some professors told Anđela that her idea wasn't achievable.

"We synthesized cadmium complex compound and then investigated its biological activity, with the help of my mentor Prof. Dr. Ljiljana Vojinović Ješić."

By the time the closing ceremony began, Anđela had already left. She didn't expect an award. The organizers had to call her to come back.

Anđela said that this was her first conference ever. "This is a really nice experience!" Her message for you is: "Follow your heart, and impossible things can come true".

Jovana Tubak talking about her ideas



Jovana Tubak presented results from her master thesis, and her mentor was Prof. Dr. Milan Vraneš. She studied the toxicity of lithium-ion batteries on tomatoes as test species.

Jovana has a lot of ideas for her future research, so we can't wait to see her future presentations. She attended this conference for the second time.

"Practice science and follow what you like to do - by working hard, you can achieve great things", she shared with us in the end.

(PH: S. Savić)

This year's conference was a special one, because the **10th anniversary since founding of the Young Chemists' Club** was celebrated. The Club was founded in 2009 by the Serbian Chemical Society, with the idea to promote research among young chemists and to connect them in this way. Filipović shared a story on how the Club was founded:

Prof. Dr. Igor Opsenica, (teaching assistant at the time), had an idea to start the Club. With the help from, now retired, Prof. Dr. Bogdan Šolaja this was achieved. In the beginning, it was just a few of us, but the number of members grew every year. Then, a few years later, in 2012 the first conference was held and now here we are - with 128 presentations, three lectures and a workshop.

When it comes to future plans for the club, Filipović revealed:

First, we would like to keep organising this conference in upcoming years. It is worth to mention another project - **Festival of Chemistry** (Festival hemije in Serbian), we organised recently for the first time. It was quite a success, so we would like to do it again in the future. Overall, the goal is to extend activities and to increase the number of members of the Young Chemists Club.

Positron wishes a very happy 10th birthday to the Club and all the best in their future work!



Our interviewee Vuk Filipović (PH: ihtm.bg.ac.rs)

A.A.H.

Library at the Faculty of Chemistry

We all know about the beginnings of chemistry as a science and as an independent course (**History of the Faculty of Chemistry, Serbian Chemical Society, The Great Serbian Chemists' Collection**), but what happened with those first chemistry textbooks? And how can one use a library as a physical place in the era of the Internet?

We asked the **librarians** at the Faculty of Chemistry, Maja Krajnović and Ana Đorđević, these questions.

Formally, the Library of Faculty of Chemistry was founded in **1986**. Today, the library has over 100.000 library units. Most of them are foreign serials, manual literature in chemistry, and textbooks used as teaching literature. The library has two catalogs; one arranged by names of authors, and the other by subject.

But, the first books that the Library gained were in the fields of **the analytical and organic chemistry**. The oldest books and scientific journals are those written in the German.

A special place in heart of the Library belongs to these publications:

The oldest serial publication is Annalen der Chemie (Liebig's Annalen der Chemie), Weinheim, from 1832. The oldest book is by Bruno Kerl, Metalurgische Probirkunst, Leipzig, 1866.

If you are interested in **doctoral theses** from the beginning of the 20th century, you should look for these two:

Svetozar Jovanović - New electroanalytical method for the quantitative determination of antimony from 1937. and

Sergius (A) Lebedev - Additions of Sodium Compounds to Coumarins from 1943.



The Great Serbian Chemists Collection (a.k.a. **Museum of Chemistry**, we wrote about this Museum in **our 16th issue, page 7**) exhibits old and rare books that belong to the Library. Because of their value they became part of the permanent exhibition of the Museum.

Maja and Ana are graduated librarians. They are very communicable, so you can ask them to help you with your research on essay or thesis.

A novelty since February of 2019 is that the Library has been cooperating with **librarians-volunteers** from the Department of Library and Information science at the Faculty of Philology - University of Belgrade. In this way, significant cooperation with young colleagues was achieved in order to develop their professional development.

The Library cooperates with the **National Library of Serbia**, which is responsible for the implementation of legal regulations, and with the **University Library "Svetozar Marković"** and its home department, which is responsible for the application of professional library standards in the work of the Library.

(PH: Ana Đorđević)



e-Library

The University of Belgrade Computer Center provides access to **KoBSON services** which stands for Serbian Library Consortium for Coordinated Acquisition in Serbian. In other words, using internet at the Faculty you have access to more than 35,000 electronic scientific journals and 170,000 electronic books.

Moreover, in 2018, the **Cherry Digital Repository** was launched to provide open access to scientific publications, as well as other results generated from projects carried out at the Faculty of Chemistry for better visibility and citation. You can also read **Positron** from there.

Even though we think we know how to google about stuff we need, we still have a lot to learn. The right place for that is our library. In order to educate users, trainings were held in 2019, such as: Training for the use of the **Repository, KoBSON services, and Proper use of the library fund and searching scientific literature**. We also enjoyed a guest lecture about using **multimedia in scientific work**.

We are happy that similar trainings will continue in the upcoming year!

Have some ideas for trainings and workshops? Please, let our librarians know.
biblioteka@chem.bg.ac.rs Facebook page and Instagram account.

(PH: Srđan Pokorni)

Maja Krajnović, Ana Đorđević

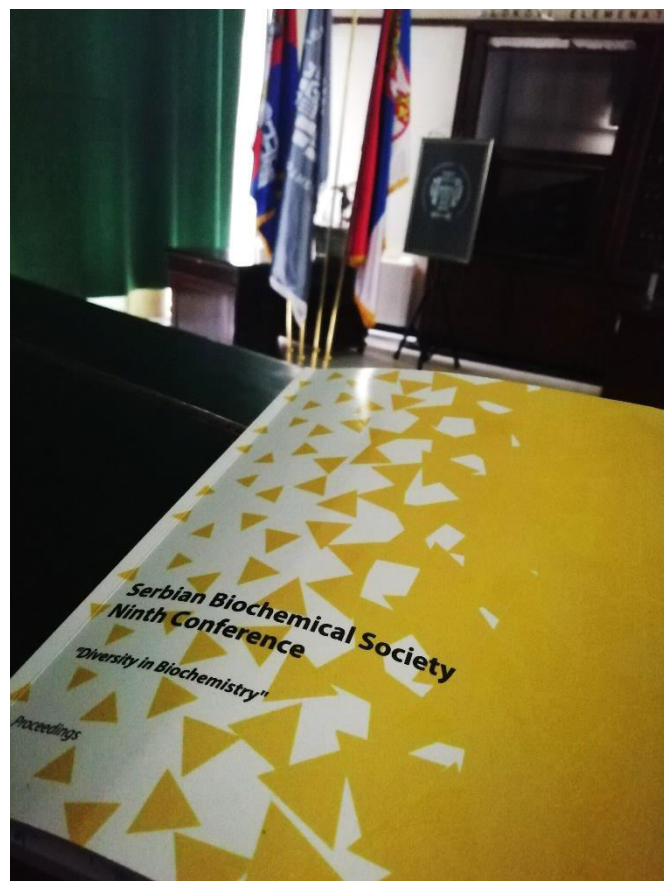
The ninth Conference of the Serbian Biochemical Society



The theme of the ninth conference of the **Serbian Biochemical Society** (November 14-16) was 'Diversity in Biochemistry'. The diversity of biochemistry can be seen in the large number of interested biochemists from Serbia and abroad. The conference was attended by 161 participants, 37 of whom came from the United Kingdom, Germany, Slovenia, Turkey, Belarus, Spain and from countries bordering Serbia, such as Hungary, Bosnia and Herzegovina, Montenegro and Croatia.

Experts in their fields shared the results of the latest research at Ilija M. Kolarac Endowment and at the University of Belgrade – Faculty of Chemistry.

The conference was opened by Prof. Dr. **Marija Gavrović Jankulović**, Serbian Biochemical Society (SBS) President. We have heard 2 plenary lectures, 14 invited lectures, 5 sponsored lectures and 15 speed talks from selected posters.





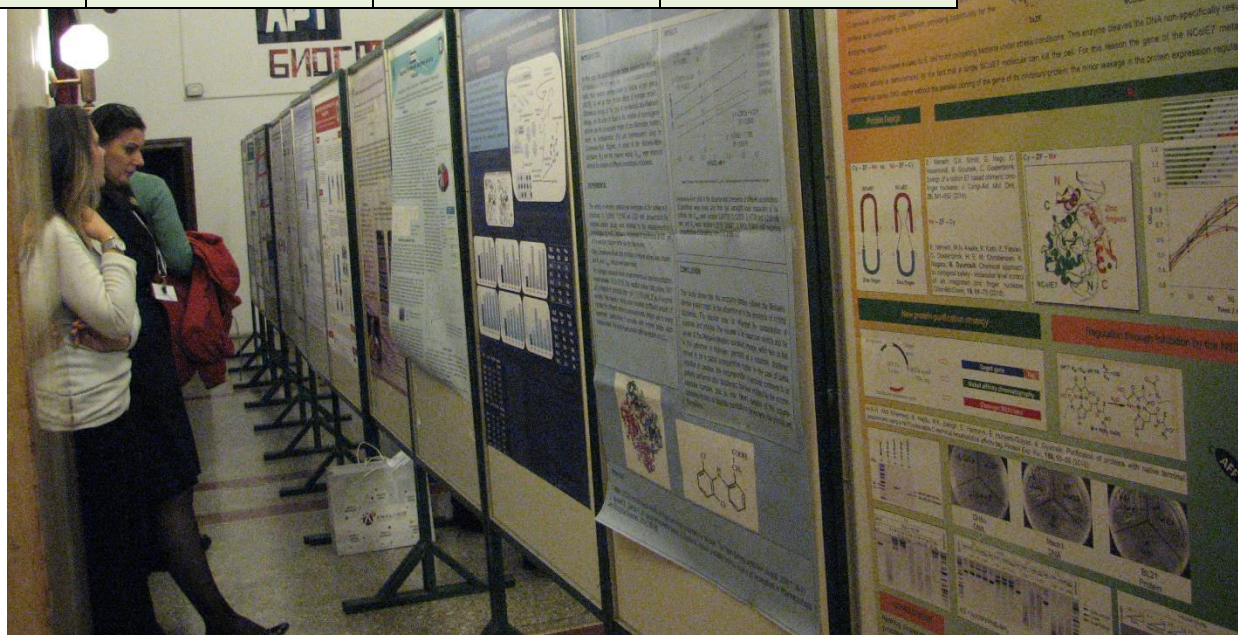
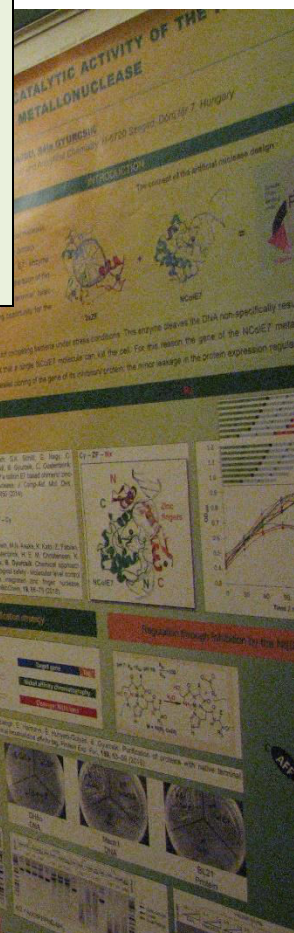
An especially vivid part of the conference was the poster section, with **4 sessions**:

- I. General and Analytical Biochemistry;
- II. Biomedicine;
- III. Enzymology, Bioinformatics and Biotechnology, and
- IV. Food Science with Ethnopharmacology.

The best posters and lectures won valuable prizes.

In the table below, the winners from all four sessions can be seen.

General and Analytical Biochemistry	Biomedicine	Enzymology, Bioinformatics and Biotechnology	Food Science with Ethnopharmacology
<p>Sandra Oloketuyi Jelica Milosević Sofija Bekić</p>	<p>Isidora Protić-Rosić Ivan Koprivica</p>	<p>Karla Ilić Đurđić Luka Breberina Milica Crnoglavac Ivana Stančević</p>	<p>Farkas Sarniayi Tatjana Majkić Péter Szelényi</p>





The sponsors of the conference were *Nano Temper*, which was also the general sponsor, *Analysis*, *Superlab* and many others, whose funds also afforded awards for the best posters. The conference was also supported by FEBS (Federation of European Biochemical Societies) as well as FEBS3+ countries (Croatia, Hungary, Slovenia and Serbia).

The general sponsor organized workshops after the conference (November 16th and 17th), where participants were able to work on some of the company's latest appliances. They examined the binding constants of their samples for a particular ligand.

Prof. Dr. **Natalija Polović**, who was also the main organizer of the Conference, made sure that the conference was even more interesting and tried to bring the participants closer together. The first day of the Conference ended with a **string quartet** at the Ilija M. Kolarac Endowment. After an exhausting second day, participants went to a **gala dinner with a night cruise** on Danube and Sava.

This kind of conference is a great opportunity for biochemists to meet each other and learn about new aspects of research.



Serbian Biochemical Society - Young science with a history

Serbian Biochemical Society is a non-governmental and non-profit scientific and professional association founded to achieve goals in the field of biochemistry. Their goals are:

- the promotion and popularization of biochemistry as a scientific discipline and profession;
- exchange of scientific knowledge and information;
- assisting and promoting the development of scientific research and the scientific background in biochemistry;
- encouraging scientific communication between scientists as well as cooperation with related societies at home and abroad.

Biochemistry, as a multi-disciplinary science, was developed in Serbia after World War II mainly within the fields of biology, chemistry, medicine, and pharmacy. Biochemists have operated within a number of societies that traditionally bring together experts in these profiles (for example Serbian Chemical Society, Serbian Medical Society, Society of Physiologists, Pharmaceutical Association of Serbia).

Biochemistry section of the Serbian Chemical Society was founded in 1967. Almost ten years later, Biochemical Society of SR Serbia was founded (1976). In the same year, the Union of Biochemical Societies of Yugoslavia was established.

Through activities of the Union, work of the Serbian Biochemical Society proceeded independently until 1991. From 1991-1996 activities were interrupted because of the breakdown of Yugoslavia. That also meant the ending in the membership of the Union in FEBS (Federation of European Biochemical Societies). The Society was re-activated and registered (1997) under the name of the Yugoslav Society for Biochemistry.

In 2009, activities were started to re-register the society with the name Serbian Biochemical Society. The Serbian Biochemical Society was accepted to FEBS as the successor to the Yugoslav Biochemical Society at the 2011 annual meeting of the FEBS Council in Turin.

You can find out more about the history of the Society [here](#).

In order to achieve its goals, Serbian Biochemical Society holds and organizes scientific and professional meetings, courses, and symposia; publishes regular or periodical publications; exchanges professional and scientific literature; collaborates and participates in the work of FEBS and other world and European associations for biochemistry and related scientific disciplines.

If you want to become a **member** of the Serbian Biochemical Society, you should be interested in scientific work in biochemistry or in related fields accept the Society's goals.

D.J.

The lengthy – in short*

*this refers to a long journey called Ph.D. studies

Jovana Orlić is an Associate researcher and a Ph.D. student at the University of Belgrade - Faculty of Chemistry, with Dr. Konstantin Ilijević and Prof. Dr. Ivan Gržetić as her mentors.

Jovana's doctoral thesis is concerned with the development and improvement of the method of metal analysis of plant samples by WD-XRF. Developing this non-destructive method of analysis for such an important type of sample avoids complex sample preparation procedures, which most often require the use of aggressive and toxic reagents.

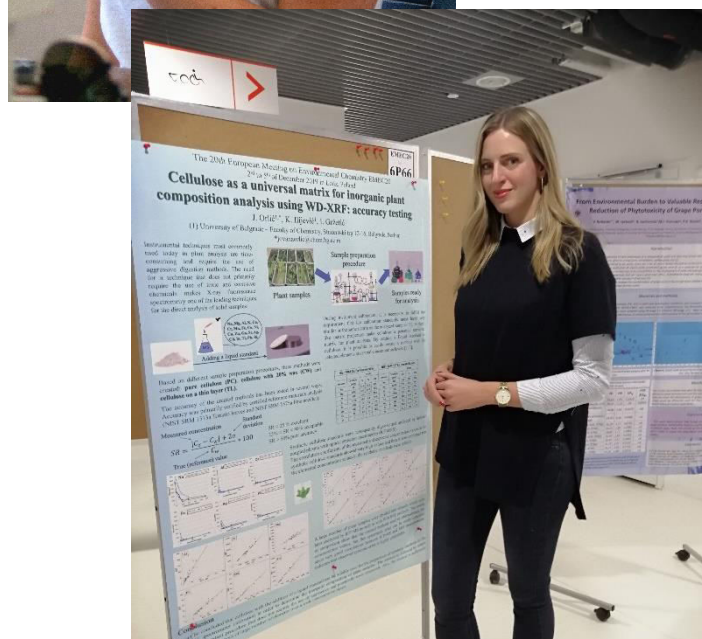
Her scientific research field is primarily related to non-destructive chemical analysis and the elemental composition of samples from the environment. Work on the devices and the diversity of analyzed samples contributes to the knowledge of different areas.

She is experienced in the use of different analytical techniques: X-ray spectrometers (ED, WD, portable), ICP-OES, ICP-MS, INAA, AAS. Until now, Jovana has published 4 papers and held 15 presentations.

During this year, she spent three months at Joint Institute for Nuclear Research in Dubna, Russia and one month at Leibniz University in Hanover, Germany. Jovana is a participant in the bilateral projects of the Republic of Serbia and the Government of the Slovak Republic, and the Federal Republic of Germany. Jovana participates in two COST projects, as well as on Erasmus⁺ project.

Jovana is engaged as a Teaching Associate at the University of Belgrade - Faculty of Chemistry, so you can meet her on several courses in the field of environmental chemistry (Atmospheric Chemistry and Air Pollutants, Chemistry of Water and Waste Waters, Inorganic Pollutants).

Also, she participated in the preparation of numerous bachelor and master thesis.



(PH: Jovana Orlić, private archive)

Andrea Nikolić is a teaching assistant at the Faculty of Chemistry and a second-year doctoral student in the group of Prof. Dr. Igor Opsenica. The main focus of Andrea's Ph.D. research is the chemistry of heterocyclic compounds.

A particular focus in her research is on the synthesis and derivatization of heterocyclic compounds utilizing the reactions that are catalyzed with transition metal complexes. Within this research, Andrea will try to introduce new methods of methodology for the application of the principles of green chemistry, such as use of a solid-supported catalysts and safer solvents and reagents.

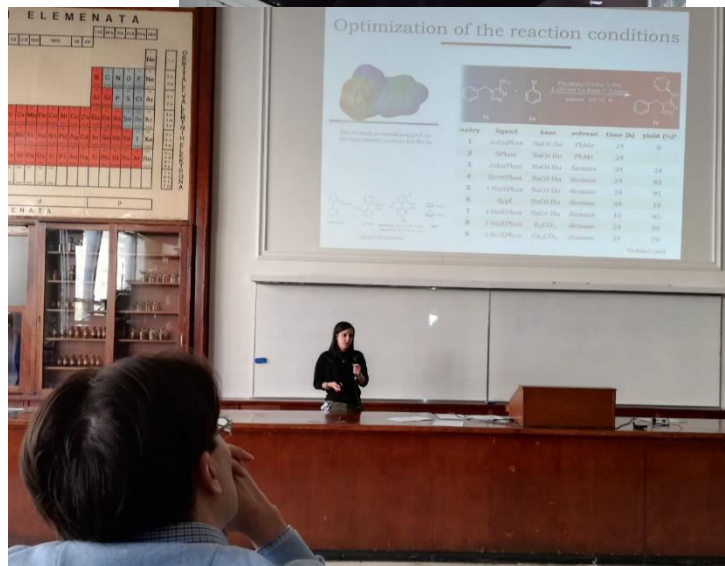
Compounds Andrea is synthesizing aren't yet registered in the literature, therefore after synthesis their biological activity will be explored, along with capability of coordinating metals. Andrea considers practicing green chemistry in organic synthesis as highly important part of scientific work. In her opinion, it is important for the environment and health of people, as well as overall efficacy of certain processes.

Besides her laboratory research, Andrea is also involved in teaching chemistry at the Faculty of Chemistry. She is engaged as an assistant in several courses in Bachelor studies and one in Master studies. She sees a position of teaching assistant as responsible task, so it's goal of hers to pass-on the knowledge and experience to students in a right way.

Simultaneously, this position allows Andrea to learn something new every day and expand her knowledge even more. She admits, one of the difficulties of her job, is to actively include all the students during the lessons.

On the other hand, Andrea says she enjoys the challenge that comes as a part of her job - constant adjustment and improvement of her teaching methods, knowledge...

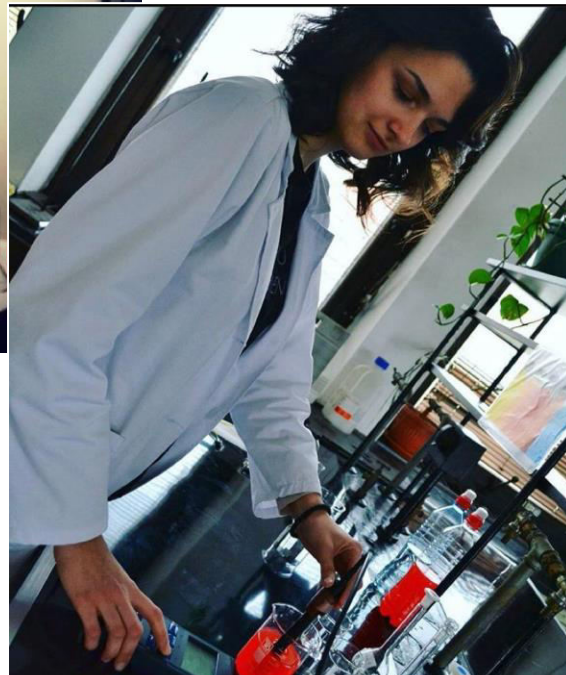
Andrea has published four papers in the international journals, and has also taken part at numerous Serbian and international conferences where she presented her research through the poster and oral presentations.



(PH: Andrea Nikolić, private archive)



(PH: Teodora Đukić, private archive)



Teodora Đukić is a Biochemistry Ph.D. student, Graduate researcher and Teaching assistant at the University of Belgrade – Faculty of Chemistry. Teodora's mentor is prof. Dr. Tanja Ćirković Veličković (read about Professor Tanja in 15th and 16th issues of Pozitron).

Teodora's research is focused on proteomics and food allergens. She is currently working on peanut allergens and posttranslation modifications (PTM). Those modifications are generated after peanut roasting, so Teodora is researching if they could cause allergies.

When she completes these investigations, she will be focusing on seafood proteins and their PTMs generated due environmental pollution focusing on oxidative modifications.

During last spring, Teodora had the luck to have the opportunity to be a part of Short Term Staff Exchange that was funded by Horizon 2020 Food EnTwin project. She spent three months at Ghent University, Faculty of Bioscience and Engineering in Belgium. In Belgium she researched metals in food products, so she got skills in sample preparation and ICP-OES analysis.

If you are a student at the Faculty of Chemistry, you can meet Teodora at these courses: Molecular Biotechnology for Biochemistry master students, Environmental Biotechnology and Food Contaminants for 4th year undergraduate students.



 UNIVERSITEIT GENT / FAC. BIO-INGENIEURSWET...

Students of the Faculty of Chemistry at a field trip



Members of Students' parliament of the Faculty of Chemistry organized the third field trip (25-29th of October). Students visited important scientific and educational institutions in Croatia and Italy.

In Rijeka, the largest port in Croatia, students visited the **JGL Rijeka**, drug factory. This is an international pharmaceutical company that operates around the globe. Today, we can find their products in 50 countries around the world and this number keeps increasing. This company is specialized in the development and production of sterile products in ophthalmology and otorhinolaryngology and is the leader in using the benefits of seawater for health purposes. Their key brands are *Aqua Maris*, *Meralys*, *Vizol S* and *Dramina*.

Students spend their free time by walking around the port of Rijeka, as well as the main square in the city center.

At the end of the day, students headed across Slovenia to Italy, to spend their night in Lido di Jesolo, in the province of Venice. The next destination was the city of Padua.

Padua, a city in northern Italy, is famous for its architecture. The city has a well preserved old town center and contains a number of churches, administrative buildings and palaces. Students could see one of the largest squares in whole Europe - Prato della Valle, as well as the most attractive Basilica of St. Anthony of Padua, the cathedral and the astronomical clock tower.



Padua has a well-known **University** which was founded in the 13th century. The oldest academic botanical garden in the world is situated within the University. This botanical garden was founded during the Venetian Republic back in the 16th century and is still in its original location.

In Venice, students saw the famous St. Mark's Square (Piazza San Marco), the main square in Venice. Here, many sights are in one place, such as the Basilica of San Marco, the bell tower of San Marco Campanile and Torre dell'Orologio (clock tower). Across the main square, students were able to enter into the famous church Santa Maria della Salute, inspiration for famous Serbian poet, Laza Kostić.

At the very end of this excursion, the remaining destination was the most beautiful – a visit to professional institutions in Trieste.

In the morning, students visited the **ICGEB – Center for Genetic Engineering and Biotechnology**. The ICGEB runs 46 state-of-the-art laboratories and forms interactive network with over 65 Member States.

This organization is dedicated to advanced research and training in molecular biology and biotechnology. They are applying the latest techniques in biomedicine, crop improvement, environmental protection/remediation, biopharmaceuticals, biopesticide and biofuel production.



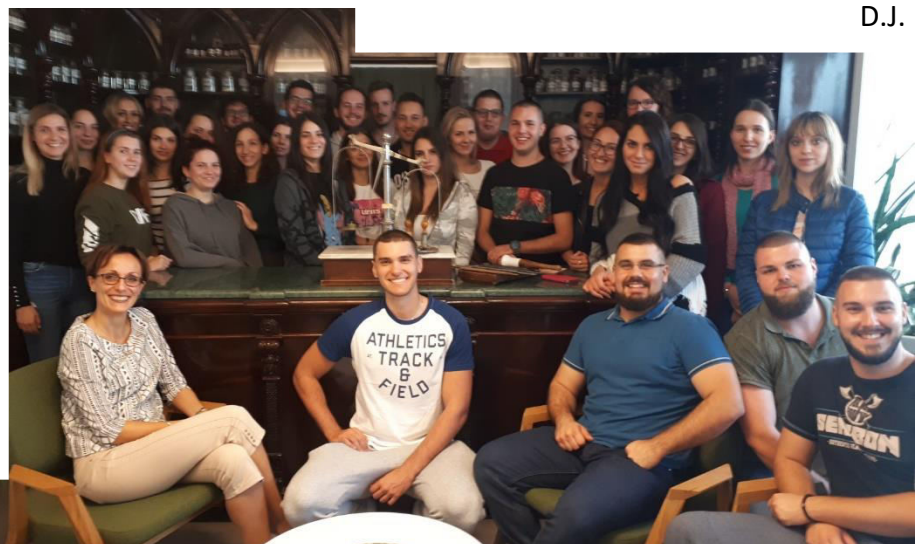
After visiting the ICGEB, students had a break to walk through the center of Trieste. Two years ago, Trieste was a part of the first professional excursion, but as an optional visit.



After the break, they had the opportunity to learn about the meaning and work of the **Elettra Synchrotron**. Elettra Sincrotrone Trieste is a multidisciplinary international research center of excellence. Here they are generating high quality synchrotron and free-electron laser light and applying this on materials or in life sciences.

This enables researchers to characterize structure and function of matter with sensitivity down to molecular and atomic levels, to pattern and nanofabricate new structures and devices and to develop new processes.

D.J.



(PH: D. Jakovljević and V. Maleš)

The Solemn Assembly of the Serbian Chemical Society

PH: Serbian Chemical Society

If you missed this **Solemn Assembly of Serbian Chemical Society**, which was held in Serbian Academy of Sciences and Arts (5th of December), make sure not to miss the next one.

This Solemn Assembly was focused on recapitulation of all the activities of the Society and all the success of its members. Find the details [here](#).

We especially enjoyed the lecture about Periodic Table of Elements, given by prof. Dr. Snežana Bojović. Did you know that Dmitri Mendeleev was a corresponding member of Serbian Academy of Sciences and Arts?

There is a letter about his acceptance kept in

Mendeleev Museum in St. Petersburg.

The stars of the day were exceptional **high school and faculty students** that achieved great things during 2019. Congratulations to **Aleksa Milosavljević** for being the best student at the Faculty of Chemistry this year. Our colleagues that won special acknowledgements are **Pavle Stojković, Nevena Srejić, Tijana Ćurić, Ignjat Despotović, Danijela Kretić and Luka Martinov.**

We are especially proud of high school students that participated in the International Chemistry Olympiad (read about this in 15th issue), **Igor Topalović, Mihajlo Milošević, Mihajlo Marković and Aleksandra Ljubenović.**

If you like, or are interested in electrochemistry, you are going to enjoy next year in Serbia.

The Serbian chemical society declared 2020 as the **Year of Electrochemistry.**



2020

S.S.

POSITRON 23

година
електрохемије
YEAR OF ELECTROCHEMISTRY



Students with awards from International Chemistry Olympiad (PH: shd.org.rs)

The best students at the Faculty of Chemistry (PH: shd.org.rs)



Anecdotes from laboratories

For the course **Chemistry of water and waste water**, students have to take a sample of natural water. Usually, students go to the Danube bay (Dorćol) accompanied by their teaching assistant and technician. One time, we only had one male student in a group.

Maybe he wanted to present himself as strong and confident, so he decided to take a telescope stick and a bottle to sample water by himself. All in all, he ended in the Danube, with his legs wet up to knees, so we finished sampling earlier than we planned.

Students from fourth year of Bachelor and master studies were in the lab that is a part of the **Biochemistry Department**. They were sitting and talking with their teaching assistant and the technician was behind them.

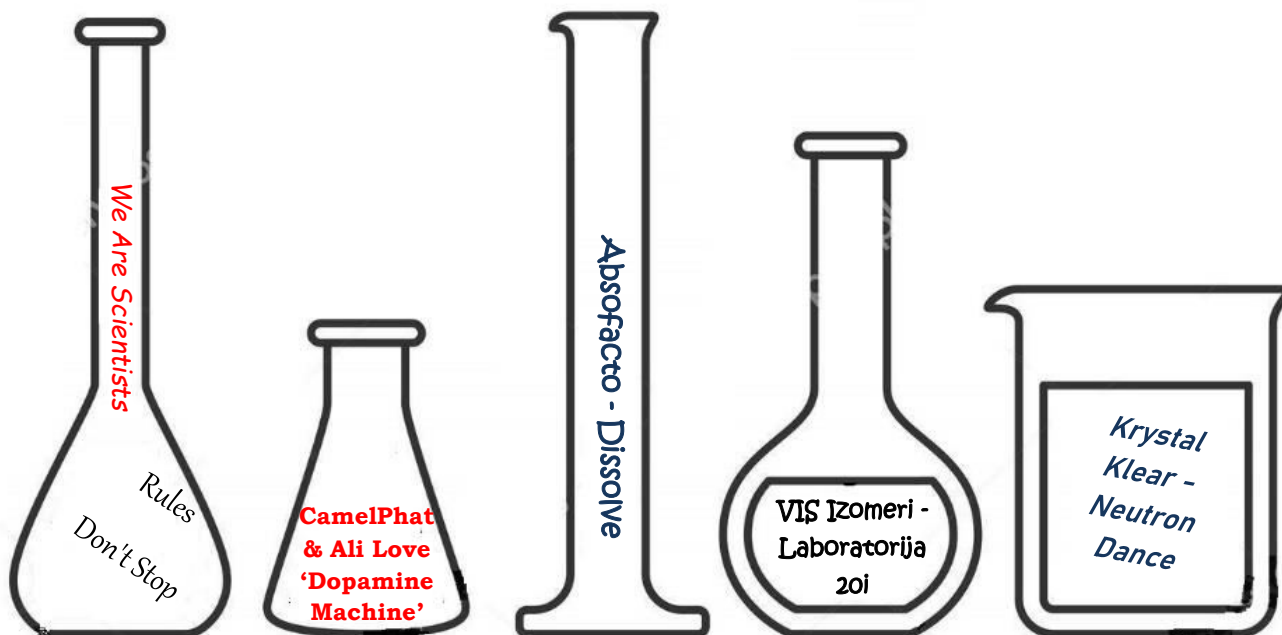
“And suddenly, I smelt almond in the laboratory. I jumped immediately and asked the assistant if he/she could smell it too and I told them to leave the lab”, the technician recalls. He opened all the windows and left lab to ventilate.

After a while, everyone came back inside and the technician asked who had spilled the potassium cyanide. No one answered at first, but then one girl said that she saw a glass beaker on the table and didn't know what is in it because it had no label, so she spilled it into the drain and flushed it.

The technician was fascinated by this, and so he warned the students that someone could have been poisoned because of such lack of care. But, luckily, they all survived.

S.S. and D.J.

Chemical Playlist

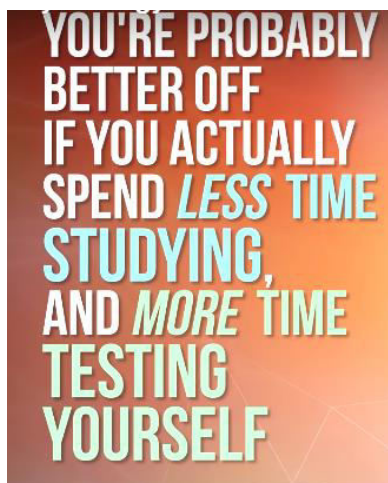


Hack yourself to a better student or teacher

We asked several of our colleagues to comment the SciShow video titled **Psychology Hacks to Become a Better Teacher (or Student!)**.

In this video, Hank Green explained three hacks that can help you to study better. Those hacks are:

1. **Spaced practice**
2. **Self-quiz**
3. **Problem solving**



YOU'RE PROBABLY BETTER OFF IF YOU ACTUALLY SPEND LESS TIME STUDYING, AND MORE TIME TESTING YOURSELF

When I was in elementary and high school, I used to **be better at organizing my time for studying**. Now, when I am a university student, I find myself struggling. I feel there are too many things to do, which is accompanied by an **exhausting schedule**.

I try to **attend lectures**, because they help me to learn something if **I have already heard** about it.

As I've admitted, my time organization is not the best, but I try to **split lessons into smaller parts**, and go through **my notes** after every class. I agree with that part about questioning yourself more than revising.

I also find **flash cards** very useful. From my experience, when there's a lot to remember, flash cards are the way to go.

Unfortunately, I have to admit the fact that sometimes, despite all my work and effort, **I don't end up getting the grade I've hoped for**. I would say after this few years at Uni, I still get very **nervous** during exams (especially verbal ones), which really blocks me. Lately I've been trying to ask questions during classes, just so I can **'break the ice'** and get used to talking with professors or teaching assistants. Hopefully this will help me to stay calm...

I always try to start studying for a test as soon as possible, a few weeks earlier, for about **15-30 minutes every day**. Not only is learning easier and less stressful, but also this method makes you remember what you learned for longer, compared to cramming everything the night before.

I'm sure that it is better to spend more time **quizzing yourself** and trying to remember what you learned, than simply reading repeatedly. That's why it's always better to **study with someone**, in a group, where people will pose questions and others will try to answer.

This is much easier than posing questions to oneself – when trick questions are almost impossible, and some important and interesting points might be overlooked. By learning this way, it is possible to keep **a lot of information in your memory with little effort**.

Even if there won't be a test soon, I always try to go through the **material that isn't clear to me at home**. I would leave the parts that I find logical for later, if I am sure that they won't be problematic to me.

I think that a large part of the course material can be learned **during class**, under the condition that the student pays attention, actively participates and tries to get to the solution of a problem before the teacher presents it.

Labwork is very helpful in overcoming parts of the curriculum, because students get practical insight into real-life problem solving. Also, working in smaller groups allows each student to participate in discussion.

I believe that these study hacks combined with a good work ethic **can never fail**. It is possible that someone doesn't really learn the material well, but believes that they did. It's usually better to feel like you don't know anything; it might be a sign that what you learned got into your long-term memory.

Also, the **more you know**, the better idea you'll have of the vast amount of information **that you don't know**.



AND THOUGH EVERYONE WHO SPACED OUT THEIR PRACTICE DID BETTER THAN A CONTROL GROUP, THOSE WHO SPREAD OUT THEIR STUDY THE MOST DID THE BEST ON A TEST GIVEN 4 MONTHS AFTER THEIR FINAL STUDY SESSION

13. FESTIVAL
NAUKE

05.12 - 08.12.2019.
Beogradski Sajam
Hale 3, 3a i 5

NIS
BUDUĆNOST
NA DELU

RAZOTKRIVANJE

Myth busters at the Science Festival 2019

A lot of people still believe that picking up food from the floor before you count to 5 keeps the food clean. Having this fact in mind, organizers of the 13th Science Festival wanted to find more myths to be busted. This year's theme was disclosure. The Science Festival was held from December 5th to 8th at the Belgrade Fair.



S.S.

Why students have more and more problems with depression and anxiety?

Many of us think of faculty as an amazing time of new experiences and great freedom to explore new ideas and find one's true self. However, at the beginning of a new chapter in life, also a new kind of problem arises.

Over the last few years, however, depression, fear, and stress have sickened students at upsetting rates.

As noted in the latest Mental Health reports worldwide, fear, stress, and depression are the top reasons that university students look for counseling.

So why are these issues so often present in university students?

The problems of modern technology

a) Influence of alienation caused by the development of modern technology

Social media is one of many things in the modern technological landscape that can isolate us, make us less human, and potentially cause a lot of harm.

There are more and more opportunities to communicate at light speed. You can get instant messages, e-mails, Facebook/Twitter/Instagram messages, actual phone or Skype calls... And if those messages are coming from everywhere and you feel forced to answer them all, the content of your conversation will get dumbed down as a result, and the conversation with actual meaning — the kind of thing that bonds us as humans — will get chucked overboard.

Recently, we had the opportunity to read more and more news which showed us that many students are living dual virtual and real lives, and at times the virtual life becomes more important than real life.

b) Individuals impose new trends

More and more individuals with a lot of influence and proportionally, with a lack of education and culture, impose new trends. I know that sounds insane, but that's true.

How? It's simple. Let's take a look at a few facts:

- Freedom of speech is a wonderful thing, we will all agree (if it exists).
- Today everyone who is using social networks can say whatever they want. All you need is a device and wi-fi connection.
- Statistically, a huge number of people are semi-literate.
- Thus, they don't care a lot about art,



(PH: deskolab.com)

science, history, academic thinking, critical analysis, economic and geopolitical aspects, etc. (For most people, that's boring) All they want is an easy pleasure and having fun.

- However, on the other side, we have an intelligent group of people who are also not interested in all boring things, but they see methods how to get easy money from other people, described in the previous sentence, from social networks. They have the freedom to place nonsense contents (rubbish) in a funny way in which people eagerly indulge.

- As a product, we have a lot of shallow-thinking people consuming a lot of rubbish, daily, without giving a chance to out-of-the-box thinking and they mock, abuse and bully that small amount of people who are not interested in rubbish content.

If you're one of the misunderstood, in the absence of understanding by society, you have a lot of tendencies to get deeply depressed.

(In short, here is how it goes.)

*Attention please: because of the mentioned above, give a chance to less noticeable smart and productive contents and people, which also exist on the internet. Try to use social networks smartly.

c) Uncontrolled unconscious anxiety

Using social networks, daily, we are exposed to a lot of useless information about other people's lives that can contribute to the so-called FOMO (fear of missing out) effect.

What is that?

Fear of missing out (FOMO) effect is described as a widespread worry that others might be having rewarding experiences from which one is absent. This social anxiety is seen as "a desire to stay continually connected with what others are doing".

FOMO is also defined as a fear of regret, which may lead to a compulsive concern that one might miss an opportunity for social interaction, a novel experience, a profitable investment, or other satisfying events.

We recommend you to try is the JOMO effect!



What is that?

Joy of missing out (JOMO) effect is the opposite of FOMO (the Fear Of Missing Out).

JOMO simply refers to the gratifying feeling you get when you break away from the (real or virtual) activities of your social group and spend time doing exactly what you want to do the most.

*Try it yourself. Be cool. Be satisfied.

Trust us, because we are **positrons**.

d) Few bad facts about social networking (Dark Side of the Moon)

Social networking can make worse feelings of disconnection and put people at higher risk for depression and low self-confidence. Social media has a damaging effect on the lives of students since it can negatively affect relationships with others, cause them to be inattentive, and potentially get computer bullied.

Chemicals as friends

Aside from shortly before-mentioned facts, there are other culprits, such as the desire to get into a good faculty – and keep good grades. To attain these goals, it is not uncommon for students and their parents to seek chemical assistance.

While medicines can be very effective and safely prescribed in patients with attention deficit hyperactivity disorder (well known as ADHD), there is a considerable risk when they are used for other reasons. It is well-known that the side effects of Ritalin and Adderall include anxiety and depression.

This risk is even higher in people taking the medicine for an unapproved reason or who do not take the medicine as prescribed.

Students with a history of ADHD also have much higher rates of anxiety and depression. In recent

years, there are more and more university students who struggle with symptoms of this disorder.

Today a lot of people run away from the problem, trying to mask them by pills.

Somewhere I heard that, if it existed, chocolate with whole bromazepam would be the best-selling product in Serbia. ("it hurts, but it's true")



My recommendation is to try other ways and face your problems. Only in that way you can solve them. However, if you have any kind of problem, first consult with qualified personnel and try to exit newly created situations by talking about your worries.

Sometimes, if you can't pay for good treatment, it is also good to talk with other people in your environment. A casual conversation with your friends can level up your cognition.

Other stressors

While going to faculty can be exciting for many, for some the adjustment is hard with profound homesickness and separation anxiety. These students are at very high risk from depression and anxiety.

Financial stresses accompanied by the rising cost of schooling, including the fear of poverty and fear of not getting a job after schooling and having to move back in with mom and dad after graduation, are associated with increased risk for depression and anxiety in students.

Frequently, parents are also involved in the faculty and work experience of their children. They create a distinct pressure that is crashing on children.

Such parental overinvolvement can foster dependence, anxiety, and depression, and block creativity.

Definitely, parents have the best intentions, but throughout parenting they periodically make mistakes. However, people need to understand that sometimes failing or not getting good scores on a test can be more instructive and instill a sense of resilience and the ability to “start aside”.

Short overview

Tough problems do not always yield simple, easy solutions. Mental health is very complex and each individual has a separate unique story, but many things are common to all of us and it is a good reason to level up verbal communication.

The key is early recognizing of the individuals at the highest risk of developing mental health problems.

There are a lot of organizations at the universities in the world that help students survive and enjoy their college days.

Some of the ideas could be organizing student's workgroups under the supervision of a team (that would be compiled of young social-humanist graduate scientists – psychologists, sociologists, andragogues...), which would deal with student's mental health issues through various debates, events, workshops, etc.

In that way, a larger number of young social-humanist scientists would be offered a job in this country, which would potentially reduce the percentage of unemployment in these scientific fields.

Besides, this project would be useful for university students and young graduates, and in term would be beneficial to our country.

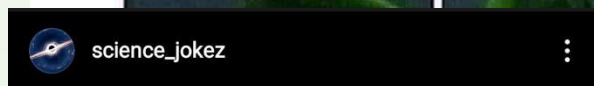
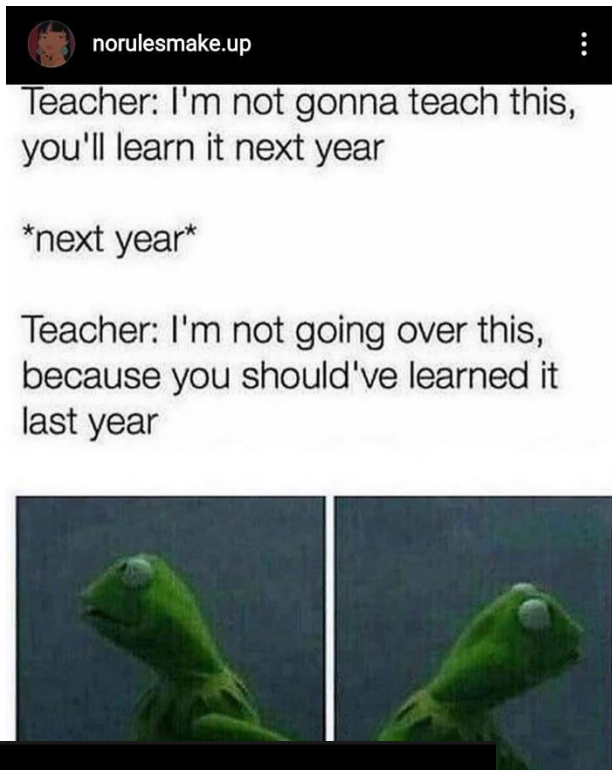
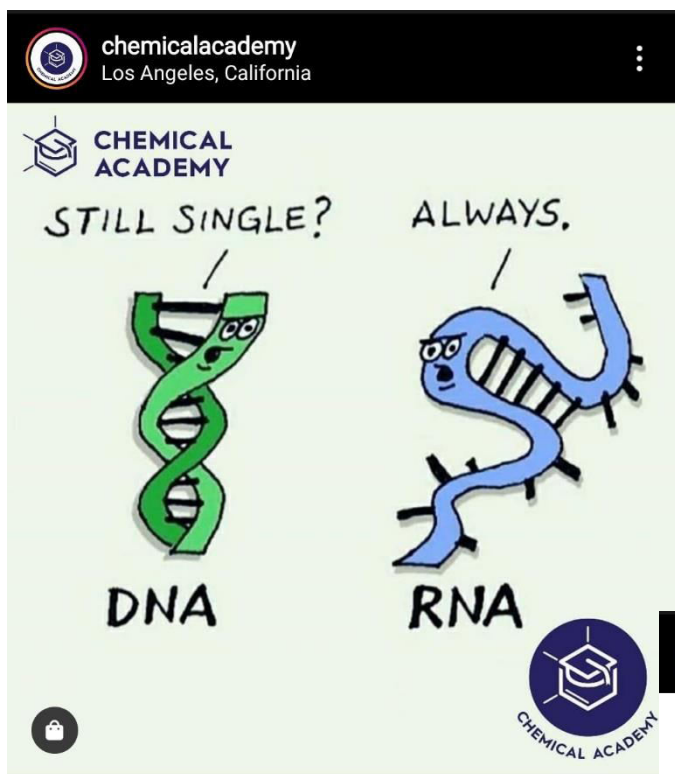
Most of all, students and parents need to know from the very beginning of the university experience that the physical and mental well-being of students matters. Universities should let parents and students know that there are trained and qualified people who can provide discreet help to those in need.

***If you think we can help in any way, feel free to share your ideas with us.**

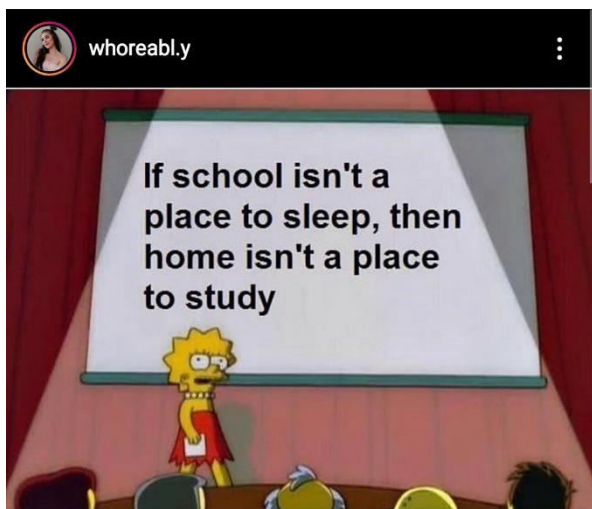
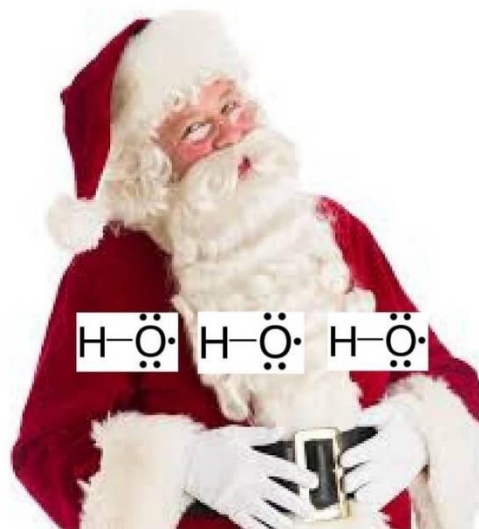
L.M.

Let's talk about it (in Serbian *Pričajmo o tome*) is a psychological support organization that works online and for free. Consider to contact them if you feel you need to.

Positivity



Chemistry Santa:



Teachers:

