

## GREAT ACHIEVEMENTS OF THE MACEDONIAN OLYMPIC TEAM IN EXTRAORDINARY CONDITIONS

If 2019 was recognizable as International Year of the Periodic Table – IYPT [1], 2020 will be remembered as the year of COVID-19 pandemic. The lock down changed many plans not only from the aspect of everyday life, but also of the way the competitions were carried out. Fortunately the division for education in chemistry that is part of the SCTM started the selection process earlier this year as part of the plan for increasing and reinforcing the knowledge of the high school students. As a result, the team for the Mendeleev Olympiad was assembled right before the outbreak of COVID-19 in Macedonia. All the preparations up to the first round of selection, were carried out as planned (Fig. 1).



**Fig. 1.** The first selection round. Theoretical exam at the Institute of Chemistry, Faculty of Natural Sciences and Mathematics, January 9<sup>th</sup> 2020

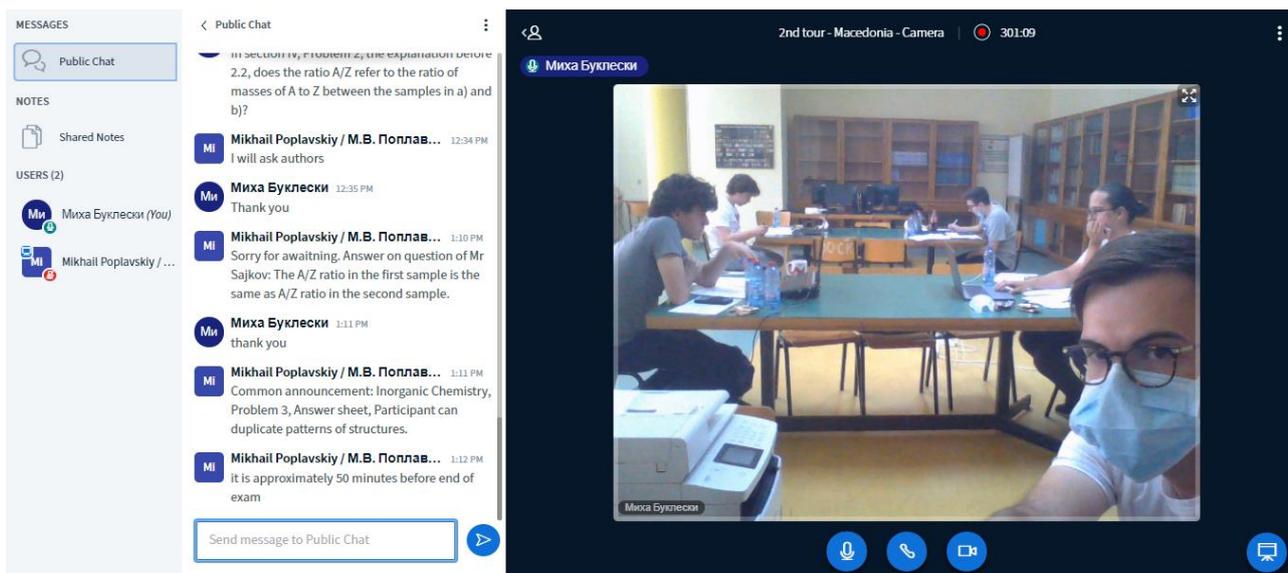
Experimental preparations were also carried out. New laboratory equipment was purchased and used for the first time at the experimental part in the frames of the selection competition for the Mendeleev Olympiad held on March 6<sup>th</sup> 2020 (Fig. 2). The modernization was done in order to level up the experimental skills of the students and their knowledge in synthetic chemistry. The main accent was put on the synthetic organic chemistry, since most of the equipment that was lacking in the past few years was in this field of experimental courses.

According to the plan, the four students that were selected at this stage of the entire selection process would have had the chance to participate at the International Mendeleev Olympiad – IMO that was supposed to be held in Budapest, Hungary. It should have been the first IMO held outside the former USSR borders since its beginning in 1965. This should have been a mark of distinction for the 2020 IMO. Unfortunately the plans changed and the Olympiad was postponed. That did not discouraged the chosen team, so the preparations carried out until end of May when everything came to a hold.



**Fig. 2.** Laboratory setup for 12 participants in the experimental part of the selection competition for participation at Mendeleev Olympiad

The IMO was decided to be organized as an online (remote) event consisting only of two theoretical rounds without the experimental part. This was a big disappointment to many teams around the world, but yet 130 participants from 27 countries took part in this event. The 54<sup>th</sup> IMO will be remembered as the first International Olympiad for Chemistry that was held remotely (Fig. 3). The competition was organized almost flawlessly with great precaution on regularity and it was dedicated to the academician Valery Vasilevich Lunin who passed away on March 3<sup>rd</sup> 2020. He was one of the most respected person in the IMO, and one of the initiator to make the Mendeleev Olympiad International competition by its character.



**Fig. 3.** During the online IMO competition at the Institute of Chemistry under a constant watch by the organizer in Moscow

The selected team of 4 students managed to win a bronze medal at this competition. The winner was Aleksandar Trajkovski, and the team consisted of (Fig. 4, from left to right):

- Leonid Sajkov, student at 3<sup>rd</sup> year in the Municipal High School “Josip Broz Tito”, Bitola;
- Darko Stojchev, student at 2<sup>th</sup> year in the Municipal High School “Dobri Daskalov”, Kavadarsti;
- Mihail Trajkov, student at 3<sup>rd</sup> year in the Private High School “Yahya Kemal”, Skopje;
- Aleksandar Trajkovski, student at 4<sup>th</sup> year in the Municipal High School “Krste Petkov Misirkov”, Demir Hisar (**bronze medal winner**).



**Fig. 4.** The selected team participating at the IMO and IChO-2020.  
From left to right: Leonid Sajkov, Darko Stojchev, Mihail Trajkov and Aleksandar Trajkovski

After the success at the IMO-2020, the next Olympiad of great importance was the IChO-2020. The Turkish organizers did not agree on postponing or cancelling the Olympiad, decision that was later established to be the most correct one. The only difference was again, the way the Olympiad was conducted. The online method seemed to be the most suitable one for this kind of situation even though the experimental part is something that marks the uniqueness of the chemistry Olympiads and the remote contest cannot include experiments. The theoretical exam was held on 25<sup>th</sup> of July with 235 students from 59 countries participating at this event. This was a competition with the least countries taking part since 2005. The previous discrepancy in the number of participants was in 2016 when the competition was supposed to be organized in Pakistan, but it was canceled due to safety reasons so the organization was overtaken by Georgia.

The observation that almost 90 % of the medal winners at IMO are medalists at IChO [2, 3], proved to be correct for our team as well. Aleksandar Trajkovski managed to win bronze medal, but also Darko Stojchev got an Honorary Mention which means that he was close to a medal. The selected team for IMO was also the team for IChO (Fig. 5) because of the health risks. Organizing an additional competition for selecting new team for participating at IChO was out of the question.



Fig. 5. Participants at the 52<sup>nd</sup> IChO from the Macedonian delegation

This was the sixth participation at IChO since SCTM took over the lead. The hard work and the experience the mentors gained over the years paid off this year as well. The results of the student with best score improve as shown on Fig. 6a) although the 2020 results are based only on the theoretical problems [4–6]. Taking into consideration the performance of the entire team, the same conclusion can be drawn based on the curve given on Fig. 6b). Again, one should be aware that the 2020 results are based on the points that do not include experimental problems.

In the future, the entire team expects greater dedication of the students hoping to find motivated scholars to proceed chasing the dream of even better achievements. As Baptiste Haddou, mentor of the French team stated: "...the real key is curiosity and passion. The students who do best don't limit themselves to the training that is proposed, but learn things because they like learning and thinking. The competition is just a temporary goal to broaden their knowledge" [7].

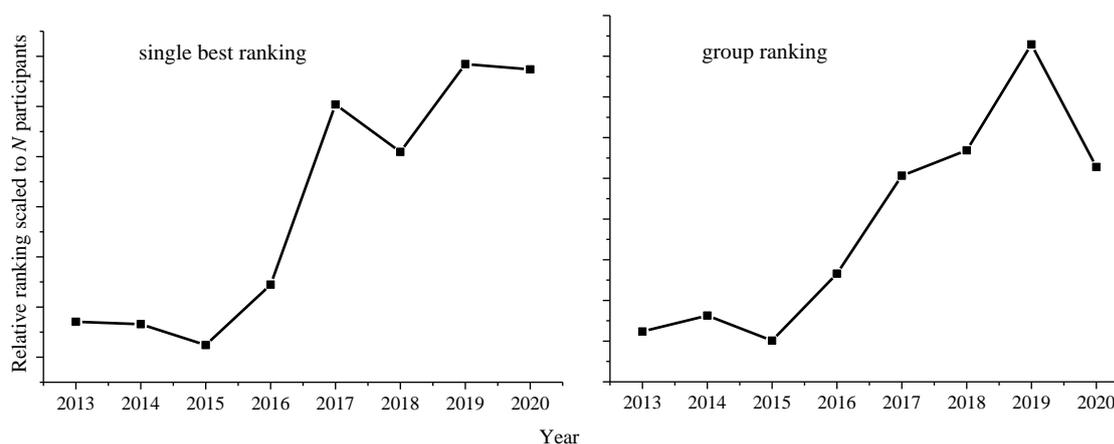


Fig. 6. The best relative ranking over the years of the (a) student with the highest score and (b) entire team, scaled to the number of participants and top single result.

## CONCLUSION

Another successful year for the Macedonian Olympic team has ended. Two bronze medals, one at the IMO and one at the IChO have been won by the 4<sup>th</sup> year high school student Aleksandar Trajkovski from Demir Hisar who continued his university education in the field of chemistry. Also Darko Stojchev was awarded an Honorable Mention at the IChO. This year will be remembered as

the year marked by the pandemic caused from a corona virus and also as the first year when remote Olympiads were organized. Even under difficult circumstances our students managed to maintain they level at international competitions. This years' results show the theoretical knowledge of the students and their ability to solve theoretical problems excluding the ability of solving experimental tasks.

## REFERENCES

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