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Opponent's opinion on the PhD dissertation of **Papné Góber Szabina** entitled
*Synthetic Fe- and Cu-containing 1-aminocyclopropane-1-carboxylic acid oxidase
models*

The doctoral dissertation of *Papné Góber Szabina* was prepared at the Department of Organic Chemistry of the Chemistry Institute of the Pannonian University, in the research group of Professor József Kaizer. The work was performed in a highly acclaimed research group of a well-established university in a topic, which is actively researched in the world. Thus, the research topic is good and timely; however, it is not the merit of the *Candidate*, as it would not be her fault if she had to suffer in a totally uninteresting field. Luckily, we are now talking about the former case and not the latter. The work has started relatively a long time ago, and could have been finished sooner; however, women, especially if they give birth to one or more kids, have disadvantage in their early stages of their career compared to male colleagues. Obviously, overtaking takes time, although slowly but surely, it is going to happen.

However, good topic only gives good possibility, it needs to be elaborated thoroughly. Let me tell at the very beginning that the work has been done properly. Since I had the opportunity to read the dissertation at the near-to-final stage, I repeat the positive findings, and check whether the shortcomings I have indicated were corrected or not.

The scientific content of the work was and remained more than satisfactory. The *Candidate* accomplished high-level experimental work, and achieved results of high quality meeting demanding international standards proven by the scientific papers published in journals of high international standings. With these articles the *Candidate* met the requirements of the Doctoral School. The material of the dissertation has also been communicated in scientific meetings. Although it is not an explicit requirement; however, in my view, conferences, especially international conferences have to be attended by every scientific worker, especially PhD students, since it is the way to learn

how to take part in scientific discussions in an intelligent way, at these meetings new research ideas may emerge, scientific collaborations can be established, etc.

It directly follows from the previous statements that the goals of the doctoral work have been achieved. The *Candidate* has learnt how to put together a comprehensive research plan, to work with various instrumentation, to solve unexpected problems, to rationalise experimental findings, to put the results in written form either as a dissertation or research papers and conference contributions. All these are going to be good assets in her further career.

In my opinion, the PhD studies are about learning problem-solving strategies, and, in view of the above thoughts, it is obvious that I find the experimental work, the achieved results as well as the dissertation suitable for awarding the PhD degree to the *Candidate*.

In my written opinion about the almost-ready dissertation, I have mentioned that there was much to do in elevating the level of English usage both in the dissertation and the booklet containing the Theses of the work. I emphasized that this is important especially in the booklet containing the theses, since, beside the scientific papers, this is the piece of work, which is going to be read by many. It is good to correct the dissertation too; however, even few people read it, the opponents, the supervisor and perhaps the members of the doctoral committee. I even made several suggestions in order to improve the linguistic level of the works. Now, I am glad to see that the suggestions were accepted and, now, both written works, the dissertation as well as the theses are of very good qualities linguistically as well.

Let me tell some word about the Theses. They are composed concentrating on the results – it is exactly at my taste. They describe novel result with fully agreeable, strong statements. I accept each as novel result.

To sum up, *Papné Góger Szabina* prepared a high-level dissertation from the extensive research she performed, and I am convinced that she fully deserves the PhD degree.

A handwritten signature in black ink, appearing to read 'Pál', followed by a stylized mark that looks like '121'.

Szeged, April 22, 2018