Ph.D. Thesis Evaluation Report for Mr. Ahmad Izaz

It gives me great pleasure to submit this evaluation for the doctoral dissertation of Mr. Ahmad Izaz, who is pursuing his Ph.D. under the title:

"Using Advanced Spectroscopic and Chromatographic Techniques to Study the Biotransformation of Steroidal Drugs and Phytochemical Constituents of *Tussilago farfara* L.**"**

I have had the honor of serving as supervisor for Mr. Ahmad Izaz throughout his Ph.D. journey. The thesis presented is of exceptional quality, addressing highly relevant scientific problems through a combination of traditional natural products chemistry and contemporary analytical techniques.

The research work is centered around two distinct but interrelated domains:

- Comprehensive phytochemical analysis of *Tussilago farfara* L., including the isolation and structural characterization of bioactive metabolites using a wide array of analytical platforms such as NMR, MS, IR, UV spectroscopy, and chromatographic techniques (HPLC, UPLC, and GC-MS).
- Microbial and enzymatic biotransformation of steroidal drugs, with emphasis on analyzing the resulting structural modifications using sophisticated analytical tools.

His thesis demonstrates a deep understanding of the subject matter, thorough experimental planning, and technical competency in executing complex research tasks. The results are of high scientific value and contribute meaningfully to the fields of phytochemistry, analytical chemistry, and biotransformation sciences.

Mr. Ahmad has also demonstrated the ability to publish his work in the following peer-reviewed journals and communicate his research effectively.

1. Ahmad I., Ghoran S.H., Yousuf M., Zafar H., Wahab A., Yousuf S., Ahmad M., Gul I., Kudaibergenova B., Choudhary M.I. Caffeoylquinic acid derivatives isolated from *Tussilago farfara* L. as potential anti-leishmanial agents; *In vitro* and *in silico* studies. *Natural Product Research*, 2025. (Impact Factor: 2.1)

2. Ahmad I., Atif M., Kudaibergenova B., Zafar H., Ghoran S.H., Wahab A., Ahmad M., Sadia M., Ali S., Choudhary M.I. Fungal-mediated biocatalytic transformation of methylprednisolone acetate into potent anti-aromatase inhibitors: *In vitro* and *in silico* studies. *Journal of Molecular Structure,* 2025. (Impact Factor: 4.7)

3. Ahmad I., Kudaibergenov B., Ahmad M., Sadia M., Choudhary M.I., Ghoran S.H. Coltsfoot (Tussilago farfara L.; Asteraceae): Modern methods of extraction, phytochemistry, nanoparticles synthesis, ethnopharmacology, and biological activities. *Natural Product Research*, 2025. (Impact Factor: 2.1)

4. Ahmad, I., Atif, M., Aldibekova, G., Balpanova, D., Zafar, H., Sadia, M., Ahmad, M., Wahab, A., Kudaibergenova, B., Choudhary, M. I., Aromatase

(CYP19A1) Inhibitory Activity of Coltsfoot (*Tussilago farfara* L.) Phytochemicals: *In vitro* and *in silico* Evaluation. *Eurasian Chemico-Technological Journal 2025*, https://doi.org/10.18321/ectj1678.

In conclusion, I find Mr. Ahmad Izaz's doctoral research to be of a very high standard. He has exhibited both intellectual independence and a strong potential for future academic and research contributions. I fully endorse the recommendation for the award of the Ph.D. degree.

With best regards
Dr. Kudaibergenova Bates Malikovna

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