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TASKS AND WAYS TO SOLVE THEM"

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# INNOVATIVE TRENDS OF SCIENCE AND PRACTICE, TASKS AND WAYS TO SOLVE THEM

Proceedings of the XVI International Scientific and Practical Conference

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### INVESTIGATION OF A DRUGABILITY OF PYRAZOLO[1, 5-A] -1,3,5-TRIAZINE DERIVATIVES BY QUANTUM CHEMICAL PARAMETERS

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Pyrazolo[1, 5-a] -1,3,5-triazine derivatives are a prospective range of compounds with lots of pharmacological activities. The range consists of 4 compounds with laboratory codes PPT-1, PPT-2, PPT-3, PPT-4 [1]. However, the investigation of their quantum chemical parameters as future medicines was not done.

The Lipinski rule or rule of five is used for defining drugability. It is also known as a Pfizer filter. In the drug discovery, it helps to predict a poor absorption or permeation is more likely when there are more than 5 H-bond donors, 10 H-bond acceptors, the molecular weight is greater than 500, and the calculated Log P (C Log P) is greater than 5 [2].

The results of applying the rule to the investigated compounds are mentioned in Table 1.

Table 1 Correspondense of pyrazolo[1, 5-a] -1,3,5-triazine derivatives to the rule of 5

Parameter	Standard for drug	PPT-1	PPT-2	PPT-3	PPT-4
Molecular mass, g/mol	Less than 500	293.15	311.14	355.22	387.24
High lipophilicity, Log	Less than 5	2.97	3.09	3.47	3.79
Hydrogen bond donors	Less than 5	0	0	0	0
Hydrogen bond accepto	Less than 10	3	4	3	4
Molar refractivity	40-130	75.74	75.70	96.21	101.14

## PHARMACEUTICAL SCIENCES INNOVATIVE TRENDS OF SCIENCE AND PRACTICE, TASKS AND WAYS TO SOLVE THEM

The results from Table 1 demonstrate us that meaning of all 5 key parameters of investigated compounds correspond to Lipinski rule.

Consequently, pyrazolo[1, 5-a] -1,3,5-triazine derivatives are highly probable to have a druglikeness, that is significant for their further preclinical investigation as medicines.

#### **References:**

- 1. Velihina YeS, Pil'o SG, Zyabrev VS, Brovarets VS, et al. Synthesis of 4-Hetaryl-2-(dichloromethyl)pyrazolo[1,5-a][1,3,5] triazines. *Ukranian Chemistry Journal*. 2020. 86(5): 53-62.
  - 2. Electronic source: http://www.scfbio-iitd.res.in/software/drugdesign/lipinski.jsp

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