Poster

New Forms of Imatinib

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Imatinib mesylate was approved by the U.S. Food and Drug Administration (FDA) in 2001, marketed under the trade names Gleevec and Glivec. It is a groundbreaking medication in the treatment of certain types of cancer, particularly in the management of chronic myeloid leukemia and gastrointestinal stromal tumours [1].

There are 10 forms of imatinib mesylate deposited in the Cambridge structure database – 4 forms of imatinib mesylate - 2 polymorphs, 2 solvates, and 6 salts. The structure of imatinib base is known as well. Cu(II), Co(II) and Ni(II) complexes, ratio 1:2 with imatinib mesylate were characterized by FTIR [2].

A crystallization screening was performed on imatinib mesylate. Neither new polymorphs nor solvates were discovered. The screenings for new salts and complexes were successful.

Imatinib mesylate was reacted with various Na^+, K^+, and Ag^+ salts to obtain new salts of imatinib and water-soluble mesylate salts. Hence, water treatment was used to purify the products. Attempts to prepare complexes were performed by reacting imatinib mesylate with Co^{2+}, Cu^{2+}, Fe^{2+}, Fe^{3+}, Zn^{2+}, $Sn^{2+}$and Ni^{2+} chlorides and nitrates.

A series of promising salts and complexes were identified with powder X-ray diffraction and recrystallized resulting in a couple of new salts and a complex, which were analysed by single-crystal X-ray diffraction.

The structures of the new forms will be presented.

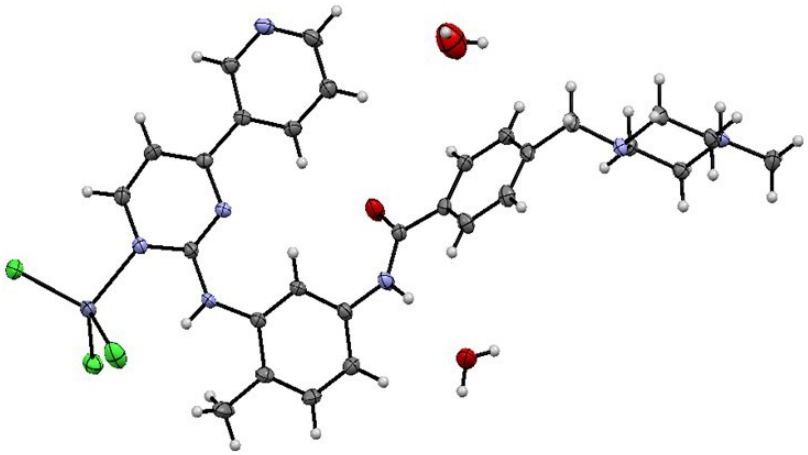

Figure 1. Dihydrate κ-N-complex of imatinib (Mercury [3])

[1] PubChem. National Library of Medicine. https://pubchem.ncbi.nlm.nih.gov/compound/Imatinib-Mesylate#section=Cancer-Drugs (15.04.2024).

[2] Cipurković A., Marić S., Horozić E., Hodžić S., Husejnagić D., Kolarević L., Zukić A., Bjelošević, D.: Complexes of Co(II), Cu(II) and Ni(II) with Antineoplastic Agent Imatinib Mesylate: Synthesis, Characterization and Biological Act. American Journal of Chemistry 2019, December 2019, 159-164. DOI: 10.5923/j.chemistry.20190906.01.

[3] Mercury 2022.3.0 (Build 390047); http://www.ccdc.cam.ac.uk/mercury/.

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