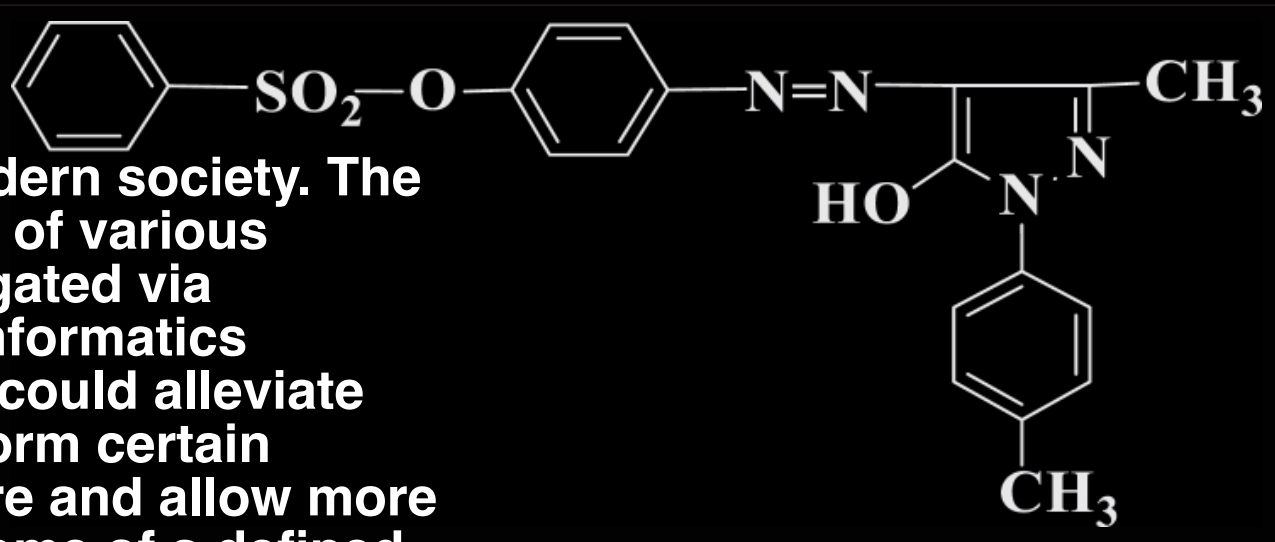
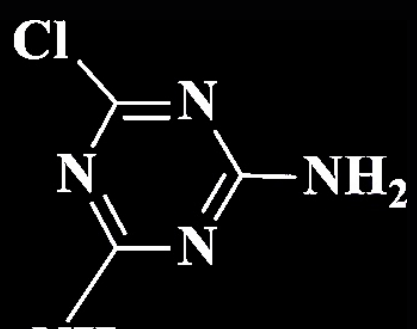
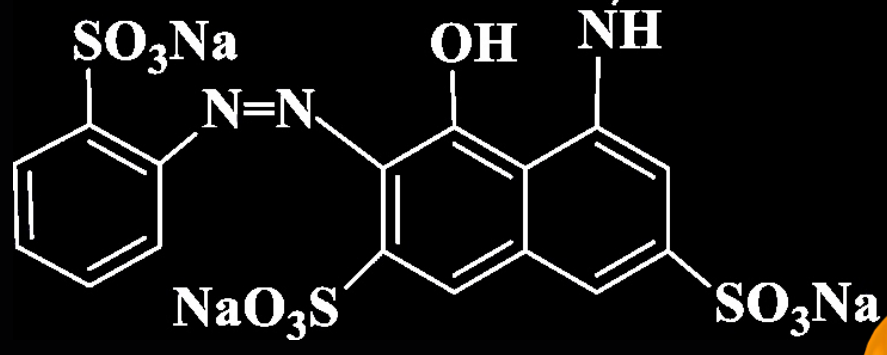


Chemistry is an essential field in modern society. The chemical sphere, by nature, consists of various laborious tasks, which could be mitigated via computational chemistry and cheminformatics techniques. Advances in such fields could alleviate the requirement for chemists to perform certain experiments during a given procedure and allow more focus to be given to testing the outcome of a defined model. Creating automated systems capable of successfully and accurately completing these tasks has been challenging when using small datasets. This is due to the lack of human intuition in computers and computation systems as well as the highly inaccurate predictions that are commonly associated with small datasets. This project will aim to solve a small dataset problem using machine learning techniques to create a model capable of applying small datasets to the azo-dye synthesis problem. An example of a technique that will be implemented is that of few-shot learning.





Small Dataset Machine Learning Applied to Azo-dye Synthesis Discovery

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Images by Freepik
Benkhaya, S., M'rabet, S. and El Harfi, A., 2020. Classifications, properties, recent synthesis and applications of azo dyes. Heliyon, 6(1).