Methods Validation App (MVA)

A Freeware Graphical User Interface for Method Validation

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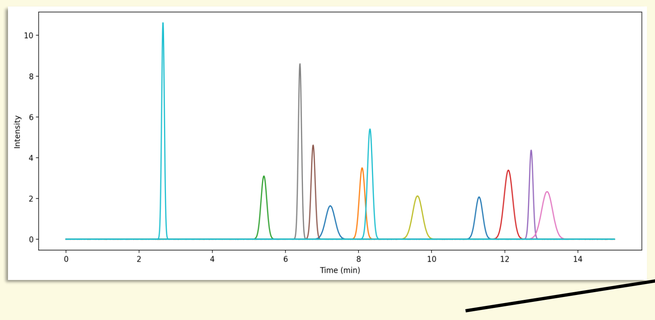
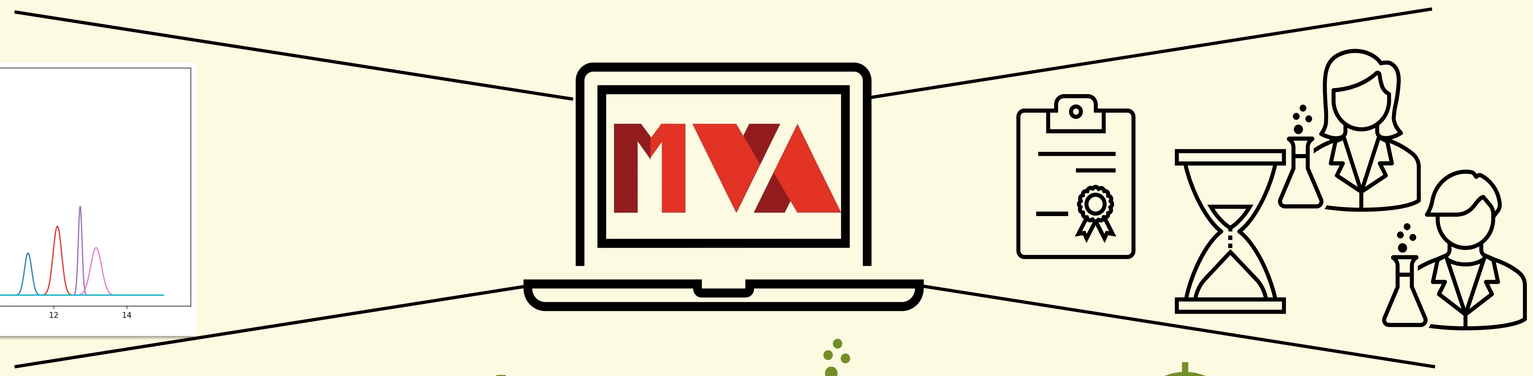
DataBloom
let your data flourish





Data import | Calibration | Limit of detection | Precision and accuracy

INTRODUCTION

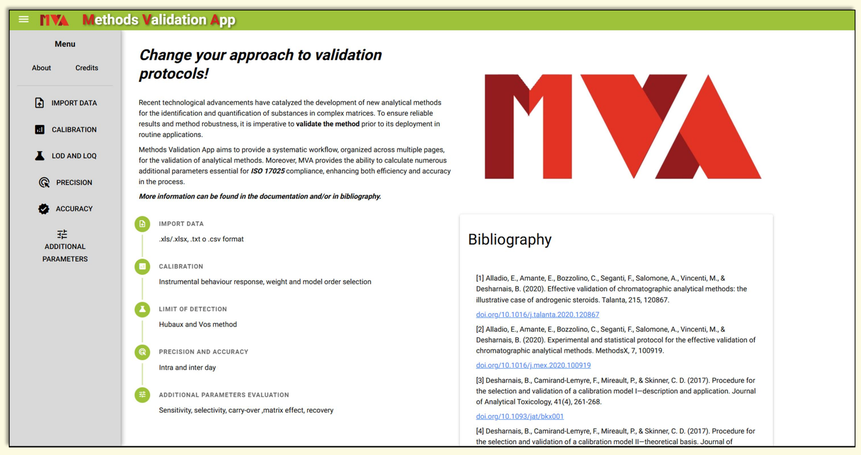
Analytical results often support critical decision in fields like healthcare, environmental monitoring, food safety, and **legal proceedings**. The outcomes can strongly affect individuals and communities, thus analytical method must be validated to **ensure results reliability**. Method validation is often complex for its many statistical and procedural requirements.

Methods Validation App (MVA), a **desktop application**, was thus developed to **streamline validation** procedures by **maximizing** the number of **validation parameters** obtained from a minimal set of experiments[1].

SOFTWARE ARCHITECTURE

MVA is developed using **Python** (ver. 3.11.9, Python Software Foundation) and open source libraries like Numpy, Pandas, Statsmodels, SciPy. Plotly, Matplotlib, Seaborn, and NiceGUI.

The software requires **no programming expertise**. A user-friendly interface allows the user to (i) easily manipulate and select input files (data from .txt, .csv, .xls/.xlsx files); (ii) compute validation parameters; (iii) display results.



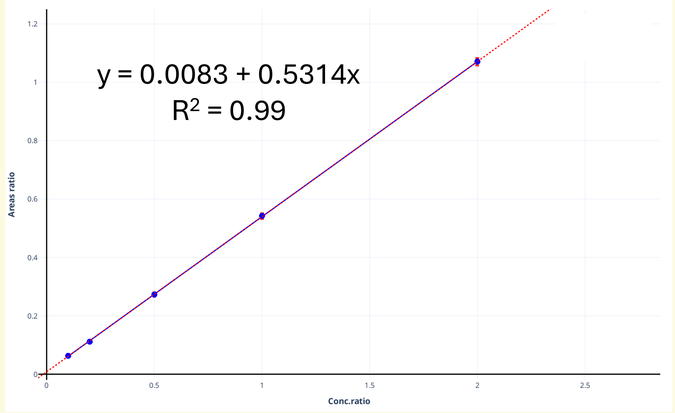
SHOWCASE

Validation of **amphetamine** on banknote dust[2] by means of UHPLC-HRMS.

ISTD amphetamine-d6
3 replicates x 3 days; 5 concentrations

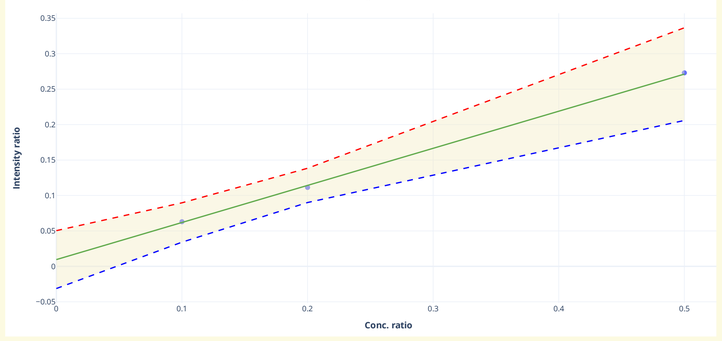
CALIBRATION

Weighted Least Squares



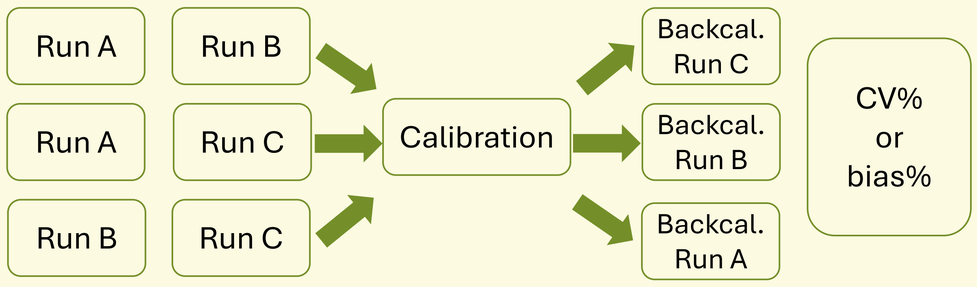
LIMIT OF DETECTION (LOD)

Hubaux and Vos method

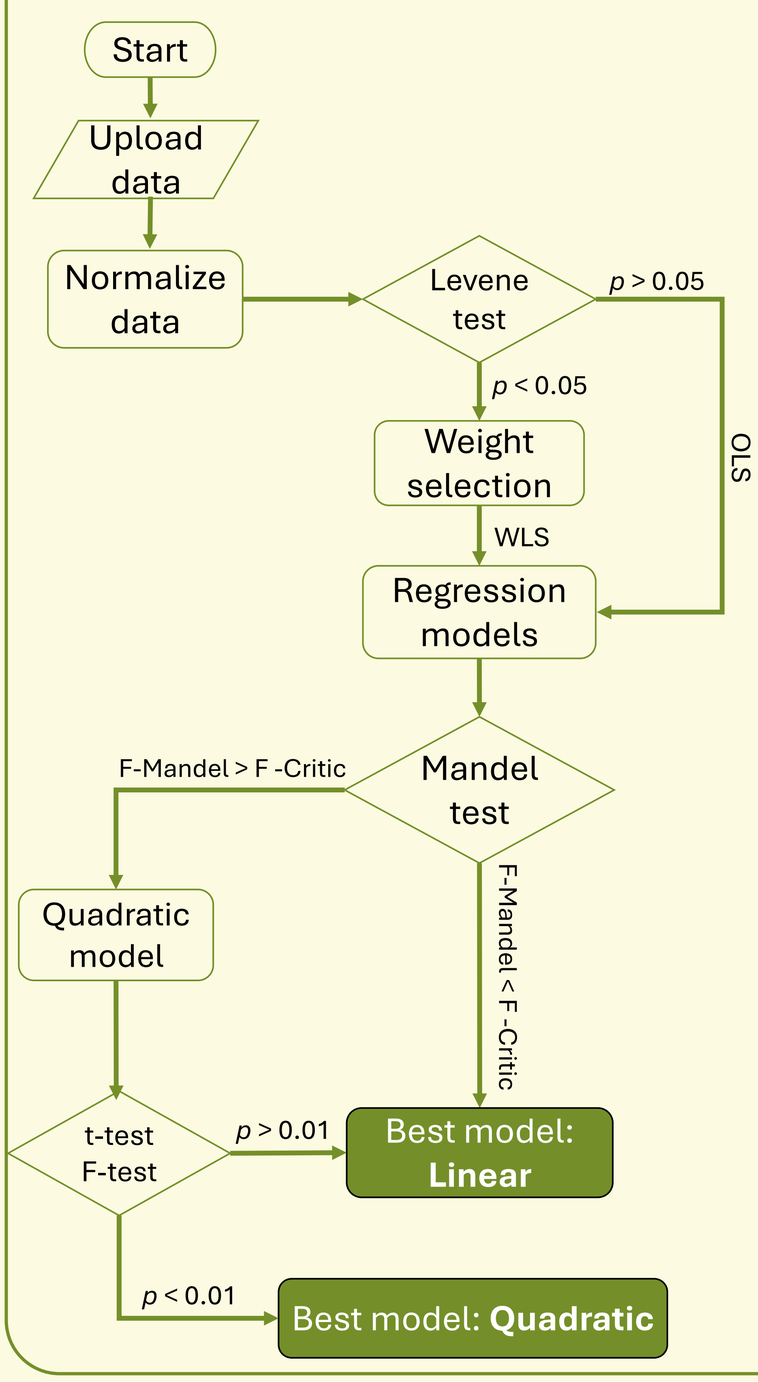


LOD (ng/mL)	LOQ (ng/mL)
0,96	1,92

PRECISION AND ACCURACY



CALIBRATION WORKFLOW



CONCLUSIONS

MVA modernizes method validation by boosting **productivity**, and ensuring **reliable results.** This novel tool also makes method validation accessible to a **wider audience**, including non-experts.

MVA will be released soon, to use a **free demo version** contact us!

[1]Alladio, Eugenio, et al. "Experimental and statistical protocol for the effective validation of chromatographic analytical methods." *MethodsX* 7 (2020): 100919.

[2]Cecchi, Teresa, et al. "Green Analysis of illicit drugs on banknote dust." *Green Analytical Chemistry* (2025): 100218.