# Removal of organic pollutants from water using wood-derived biochar

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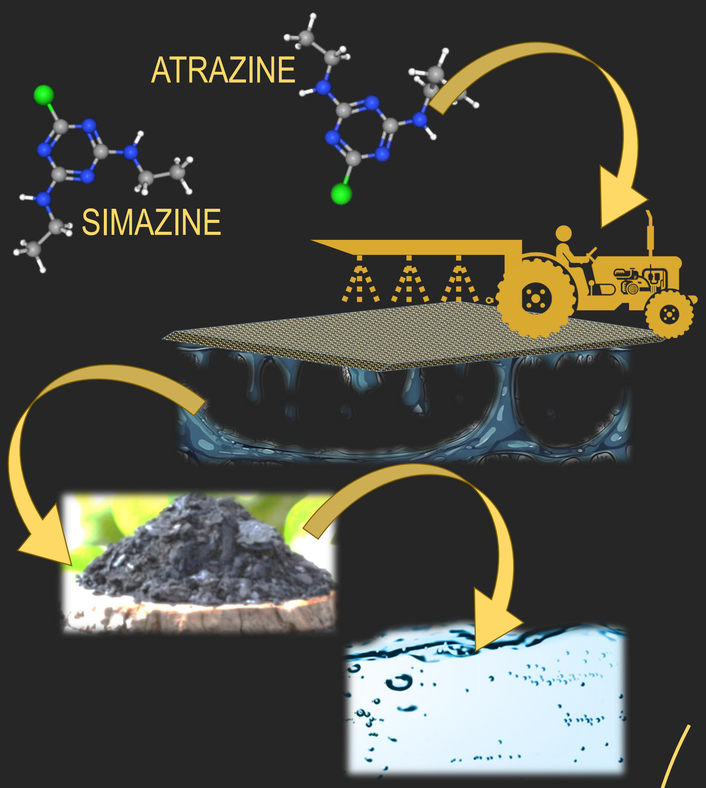
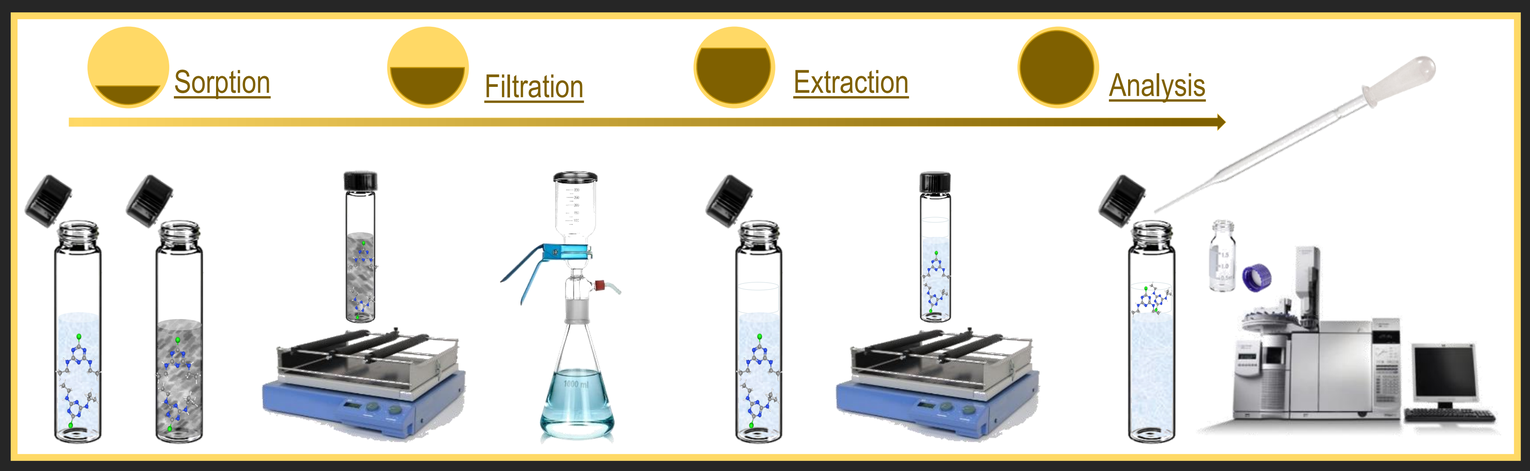
## Introduction and objectives




## Experimental setup and analysis

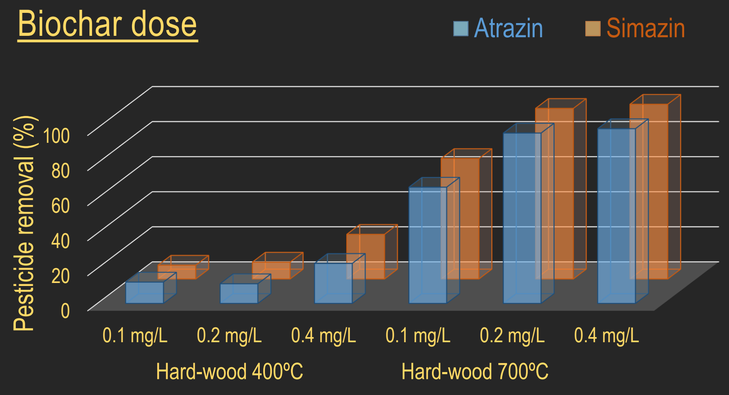



**Biochar dose**: 0.1 mg/L, 0.2 mg/L, 0.4 mg/L
**Kinetics**: dose 0.1 mg/L, $C_0$ 100 µg/L, contact time 1-72 h
**Isotherms**: dose 0.1 mg/L, $C_0$ 10-100 µg/L, contact time 24 h

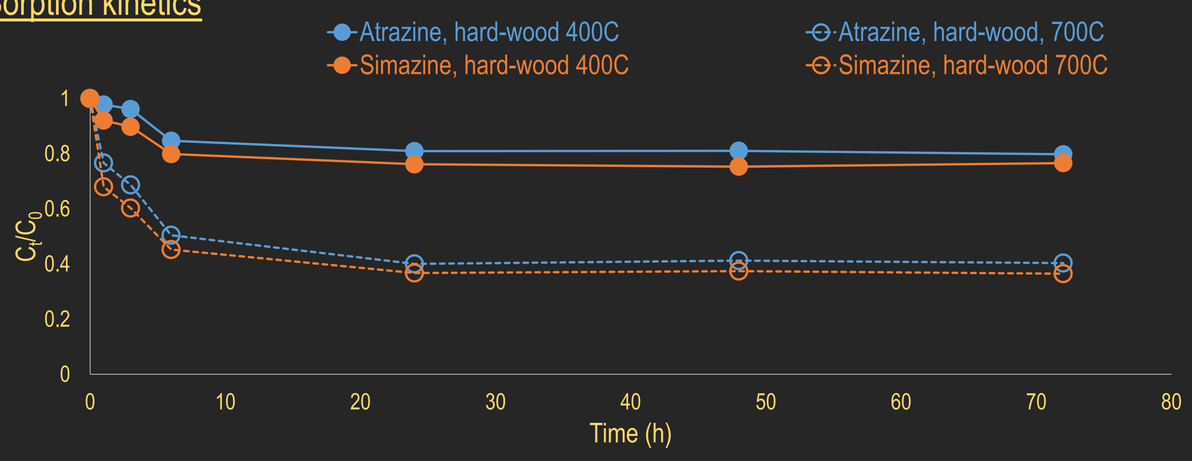
CONTEXT METHODOLOGY RESULTS

## Results

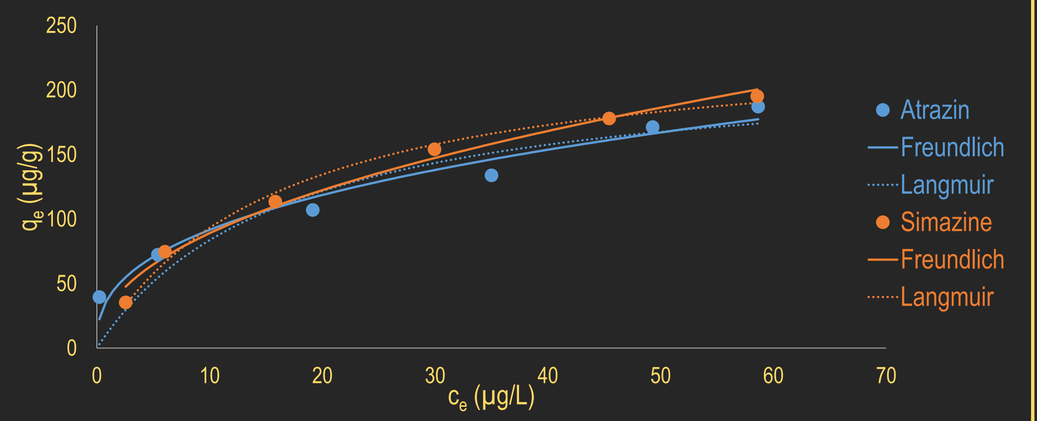
### Biochar dose



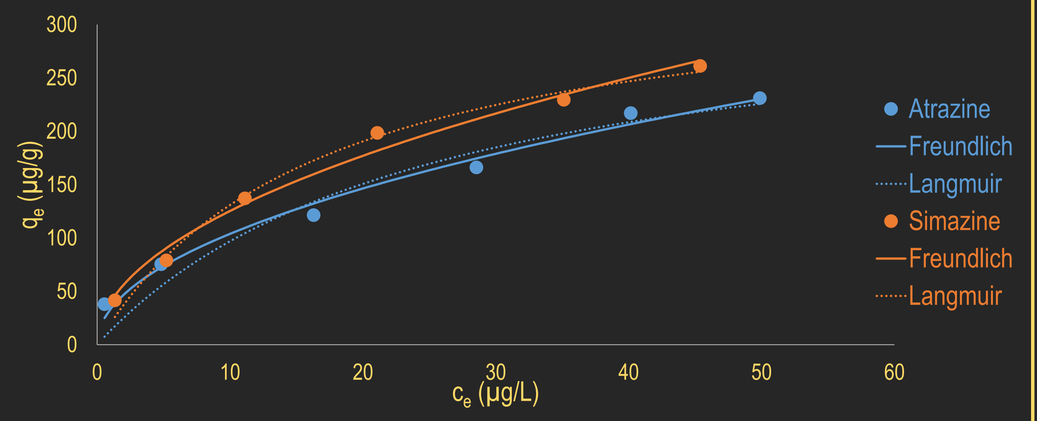

### Sorption kinetics




### Sorption isotherms, hard-wood 400ºC




### Sorption isotherms, hard-wood 700ºC




| Pyrolysis temperature | Pesticide | Freundlich $K_F$ (µg/g)/(µg/l)$^n$ | Freundlich n | Freundlich $R^2$ | Langmuir $q_{max}$ (µg/g) | Langmuir $K_L$ (l/µg) | Langmuir $R^2$ |
|---|---|---|---|---|---|---|---|
| 400ºC | Atrazine | 38.73 | 0.374 | 0.949 | 223.7 | 0.060 | 0.823 |
| | Simazine | 30.96 | 0.459 | 0.984 | 241.8 | 0.063 | 0.989 |
| 700ºC | Atrazine | 33.21 | 0.495 | 0.980 | 338.2 | 0.040 | 0.924 |
| | Simazine | 39.73 | 0.499 | 0.983 | 350.1 | 0.060 | 0.988 |

## Conclusion

- Results indicate a high potential of wood-derived biochar for triazine herbicides removal from water
- Higher pyrolysis temperature enhanced biochar performance, significantly increasing pesticide removal

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