

# Towards Harmonisation of Biogas Research: A Comprehensive Systematic Review of Anaerobic Digestion Parameters and Processes



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## Introduction

- There is an urgent need for renewable energies
- Biogas is a promising technology with growing research
- Unfortunately, the field is extensive, fragmented and lacks standardisation, hampering effective and rapid progress in research.

## Aims

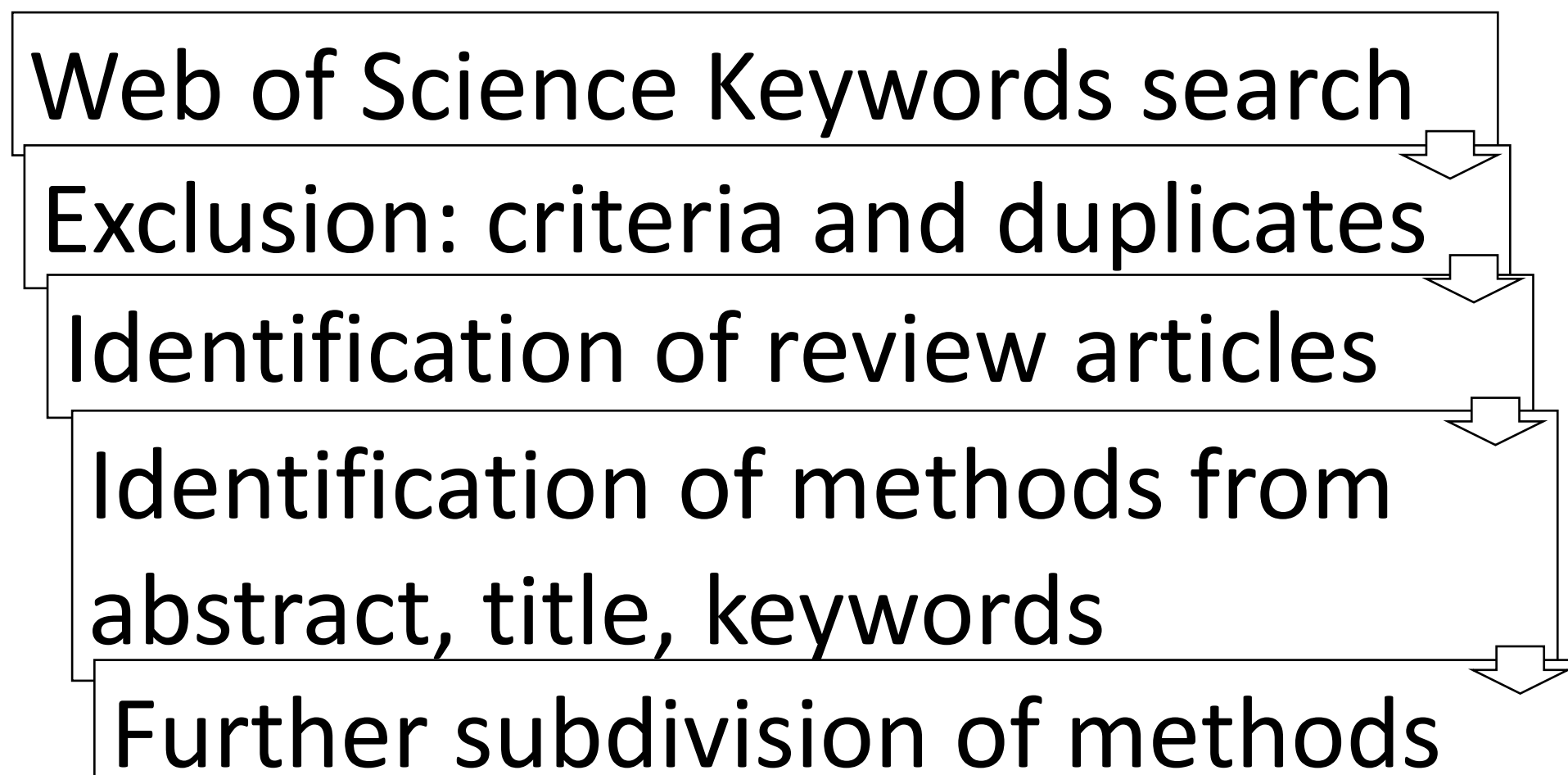
This research aims at providing a general overview of the technology through systematic research.

This is seen as a first step towards harmonisation of the technology

## Methods

Use of adapted PRISMA protocol (2020), for transparency and reproducibility.

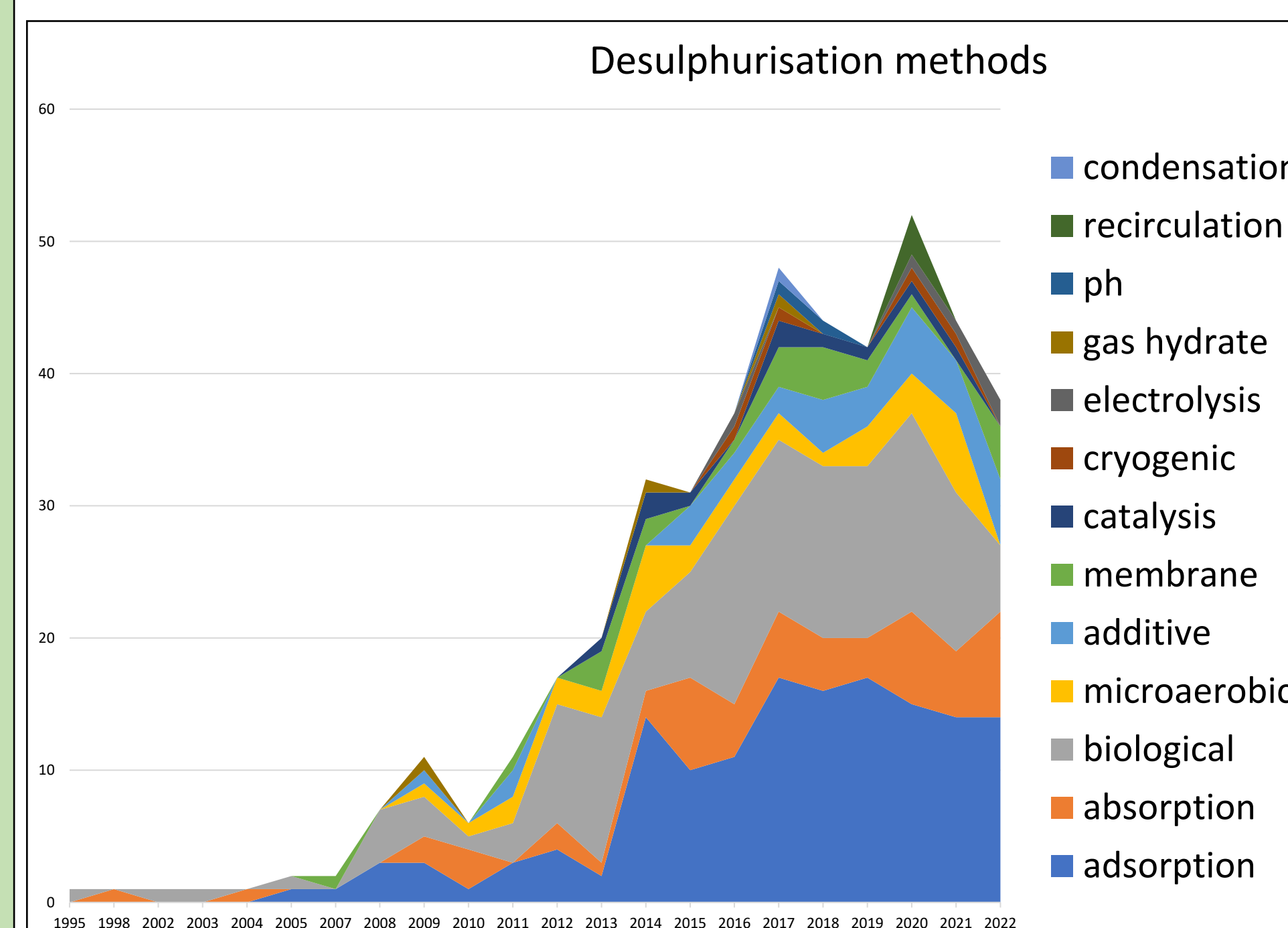
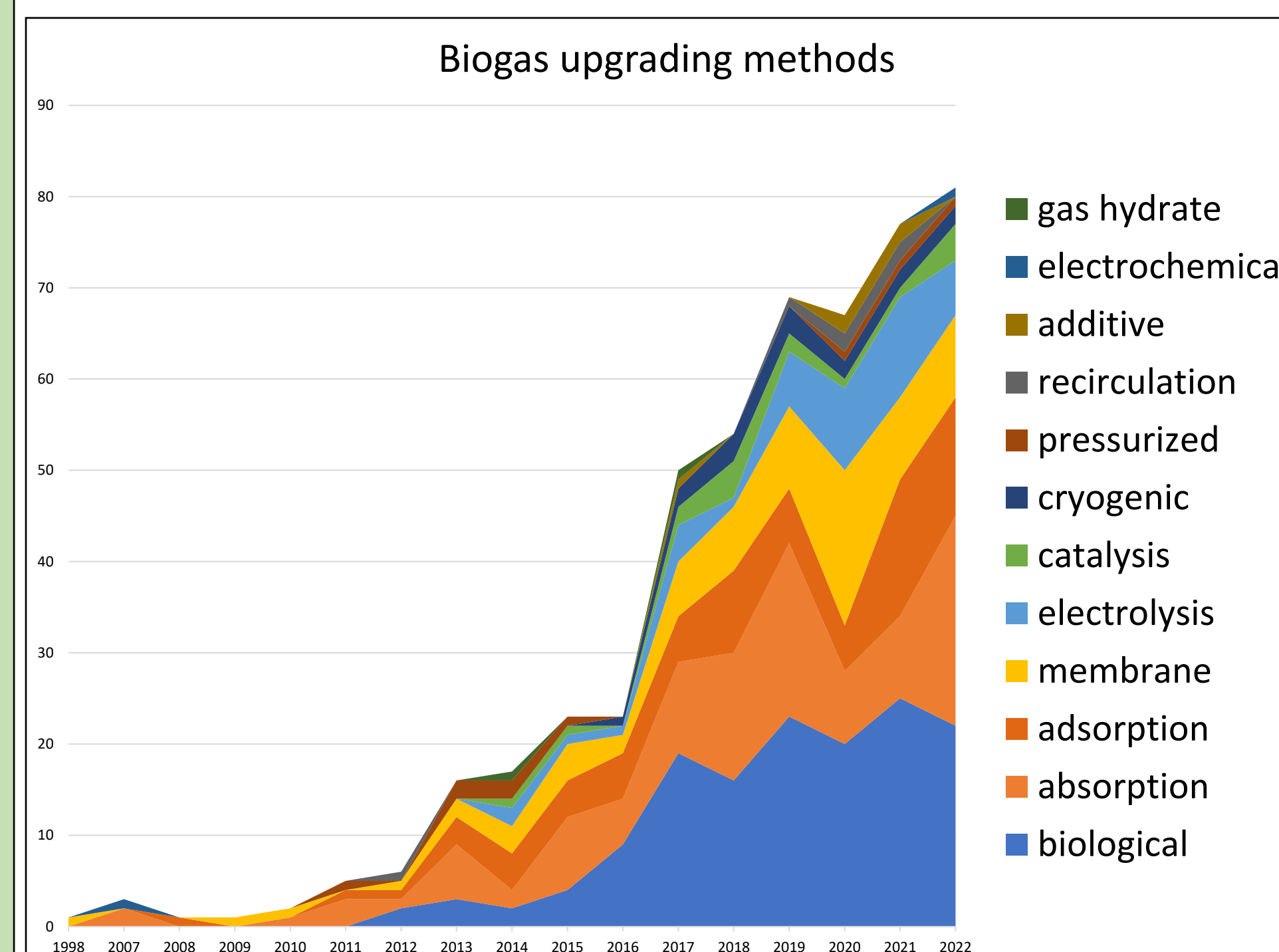
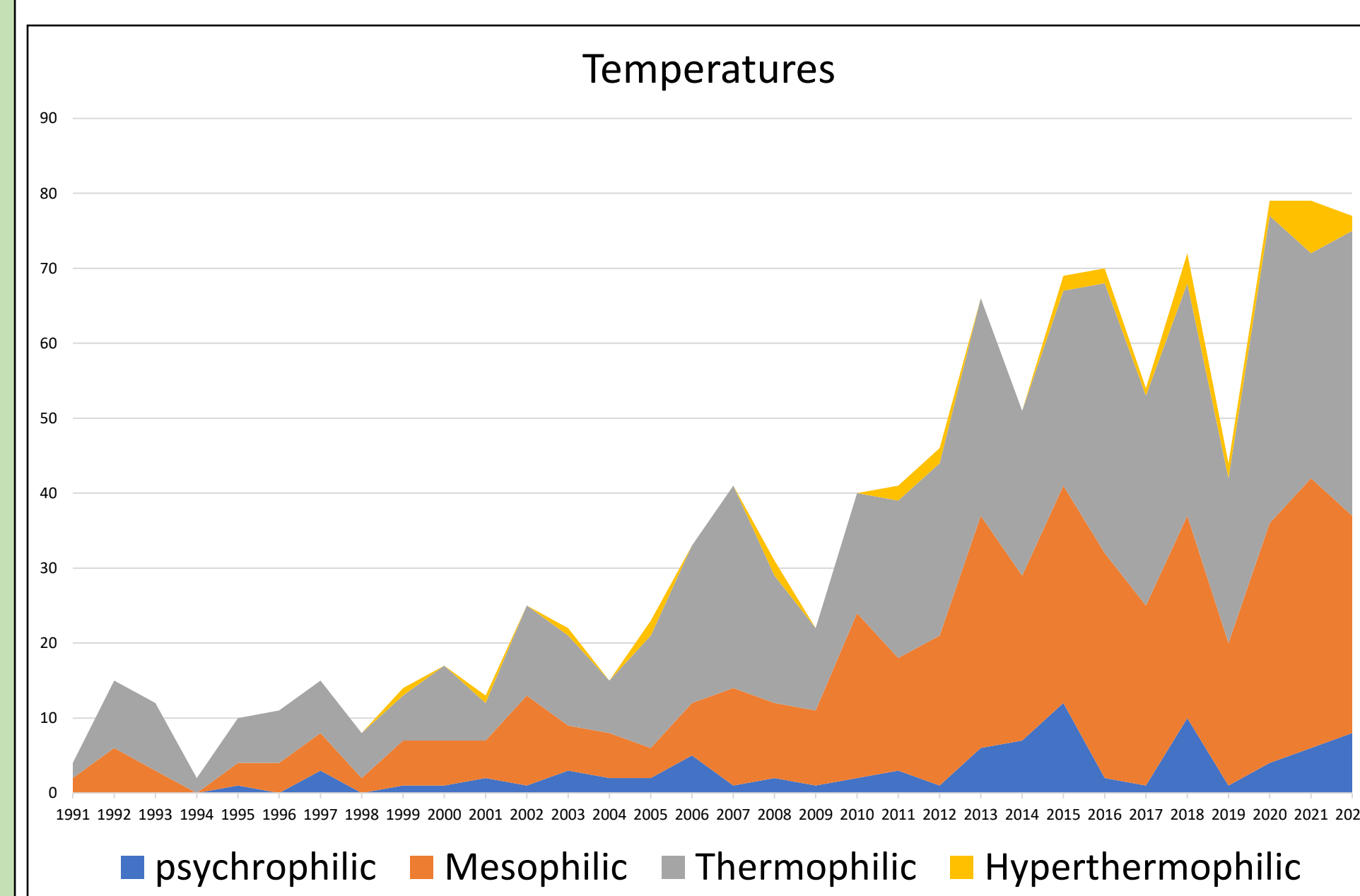
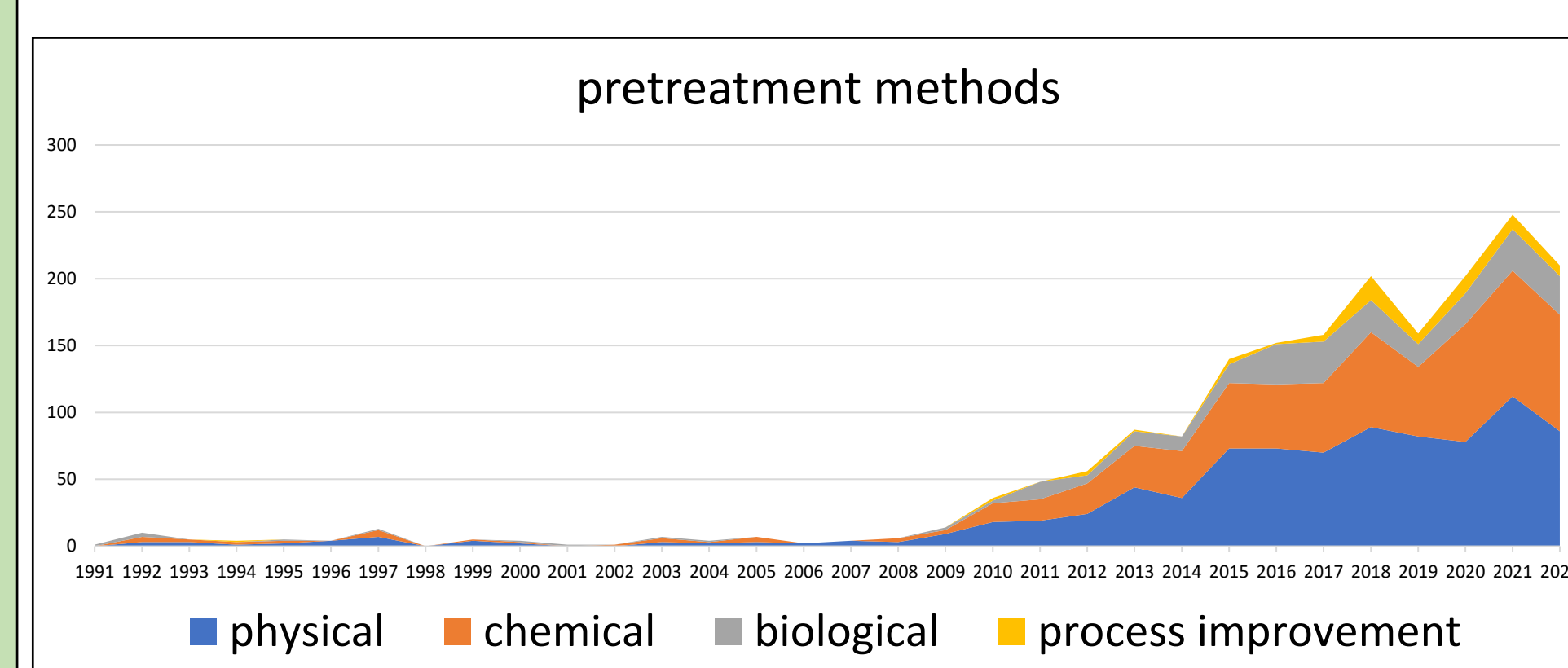
5 areas of research: pretreatment, reactor design, temperature, desulphurisation and biogas upgrading



## Results

In total 4660 articles were gathered from Web of Science from 1945 to 2022.

	rejected	reviews	analysed
Pretreatment	84	140	1055
Reactor design	204	43	676
Temperature	37	21	849
Desulphurisation	357	59	422
Biogas upgrading	94	94	470



## Discussion

- More systematic research is necessary, only 3 systematic reviews were found (1 for biogas upgrading and 2 for desulphurisation).
- Classification is complex with overlapping categories. It is necessary to create systematic measurable definitions for use in research.
- Potential articles and methods were missed, due to poor keyword usage. A standard reporting method is necessary to ensure proper reporting
- Confusion with names, could be solved with cooperation and a standardised library.
- Cooperation, standardisation and guidelines could lead to simplified and more accurate review process.
- A maintained database and increased cooperation could improve research speed and efficiency.
- Access to articles can be an issue, a move towards open science is necessary.

## References

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