

# Characterisation of a natural red pigment from a Basidiomycota strain

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## Introduction

The demand for alternative food colourants, especially red dyes, is constantly growing, as synthetic dyes such as azo compounds, have a very low consumer acceptance and natural dyes usually lack ideal properties in terms of stability or water solubility. Screening of a variety of species from the phylum Basidiomycota revealed three promising candidates for the submerged production of a water soluble red dye. The results for one of these candidates are presented below.



## Methods & Results

### 1. Stability assessment

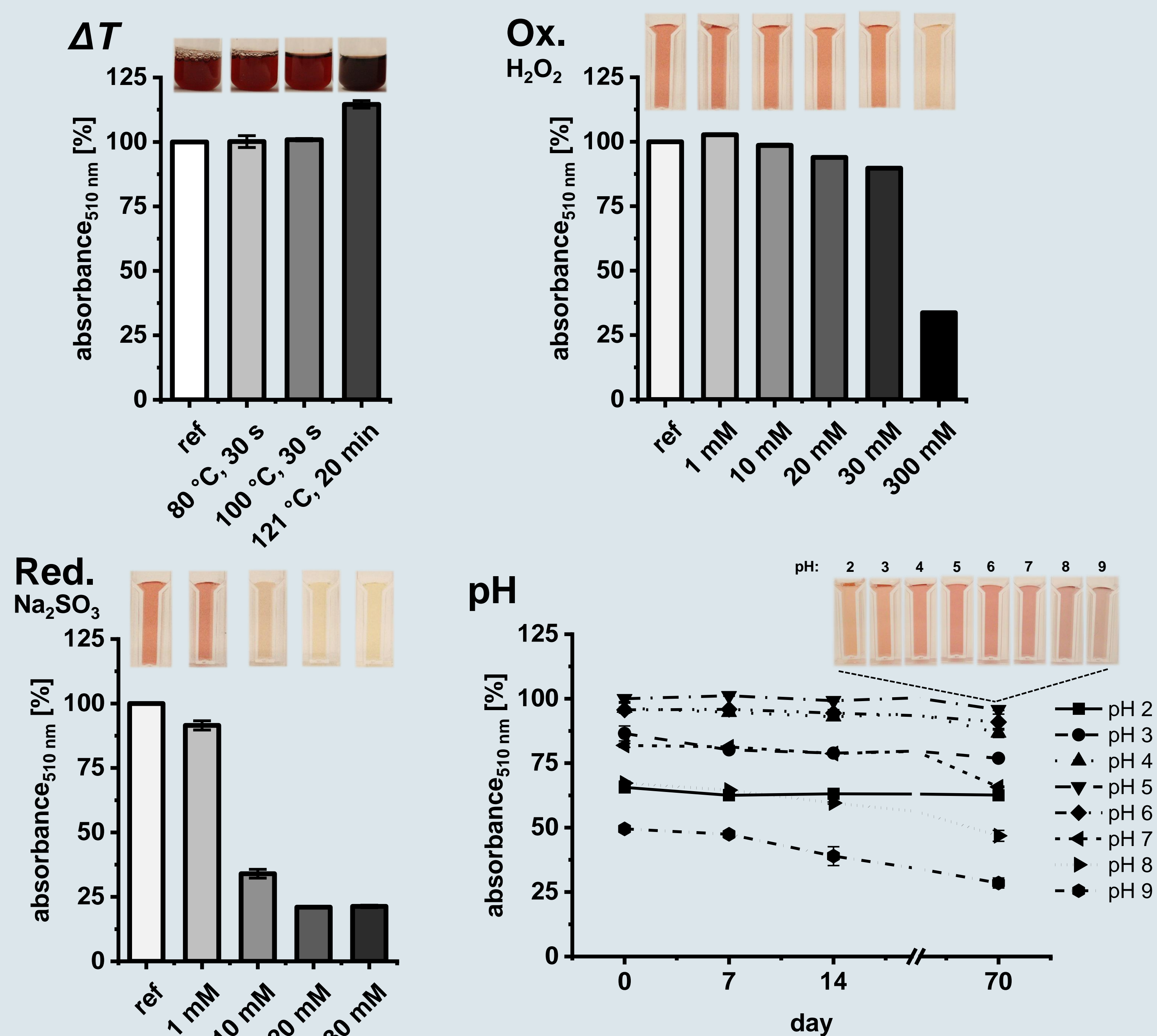


Fig. 1: Stability tests using the unpurified culture supernatant against temperature, pH, storage, oxidative or reductive agents.

### 2. Colouring model food systems



Fig. 2: Fruit jellies coloured with 4% (upper row) or 2% (lower row) unpurified culture supernatant.

### 3. Isolation & structure elucidation

After successful stability tests and pilot application experiments, the colour active compounds were isolated.

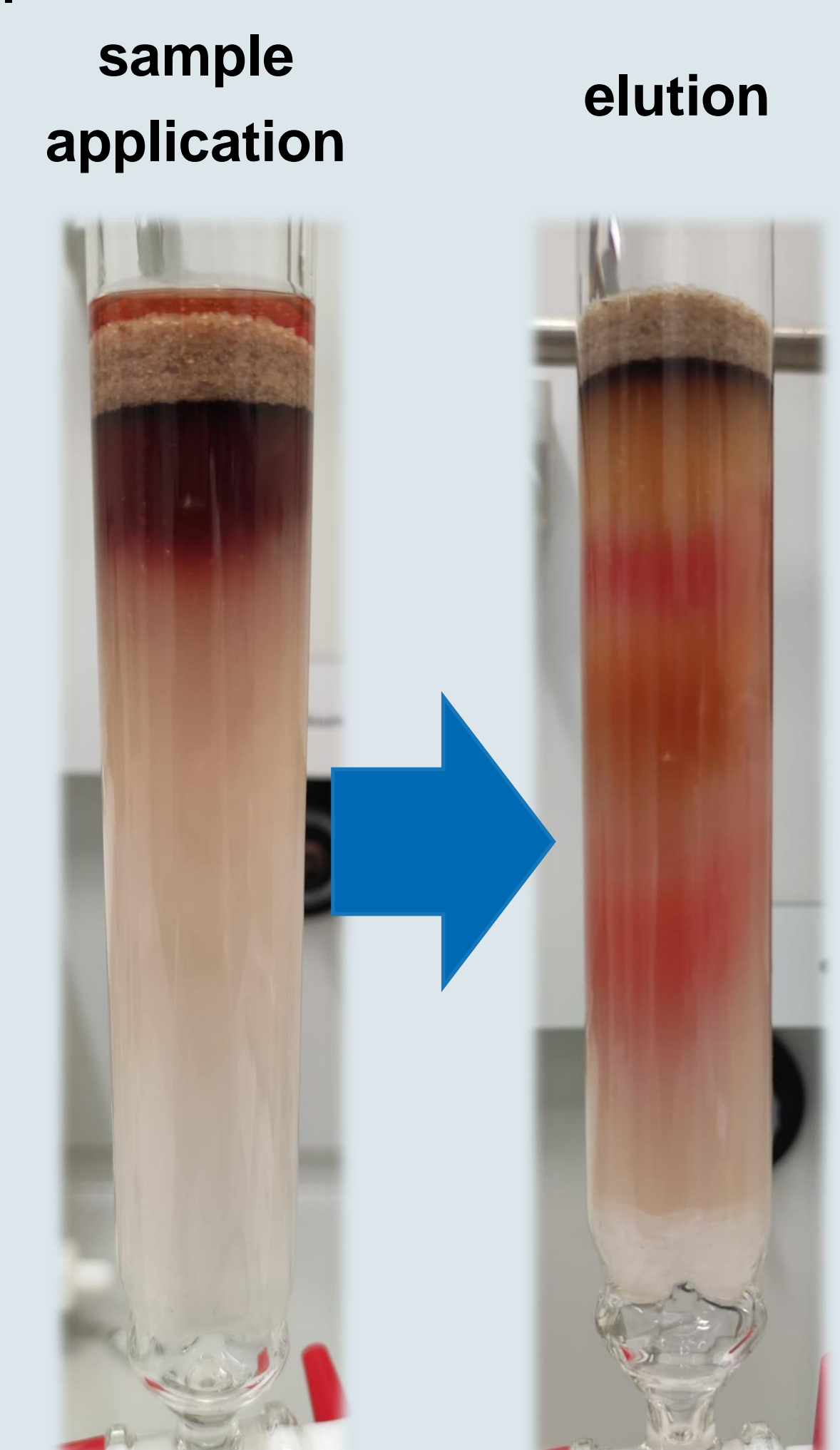
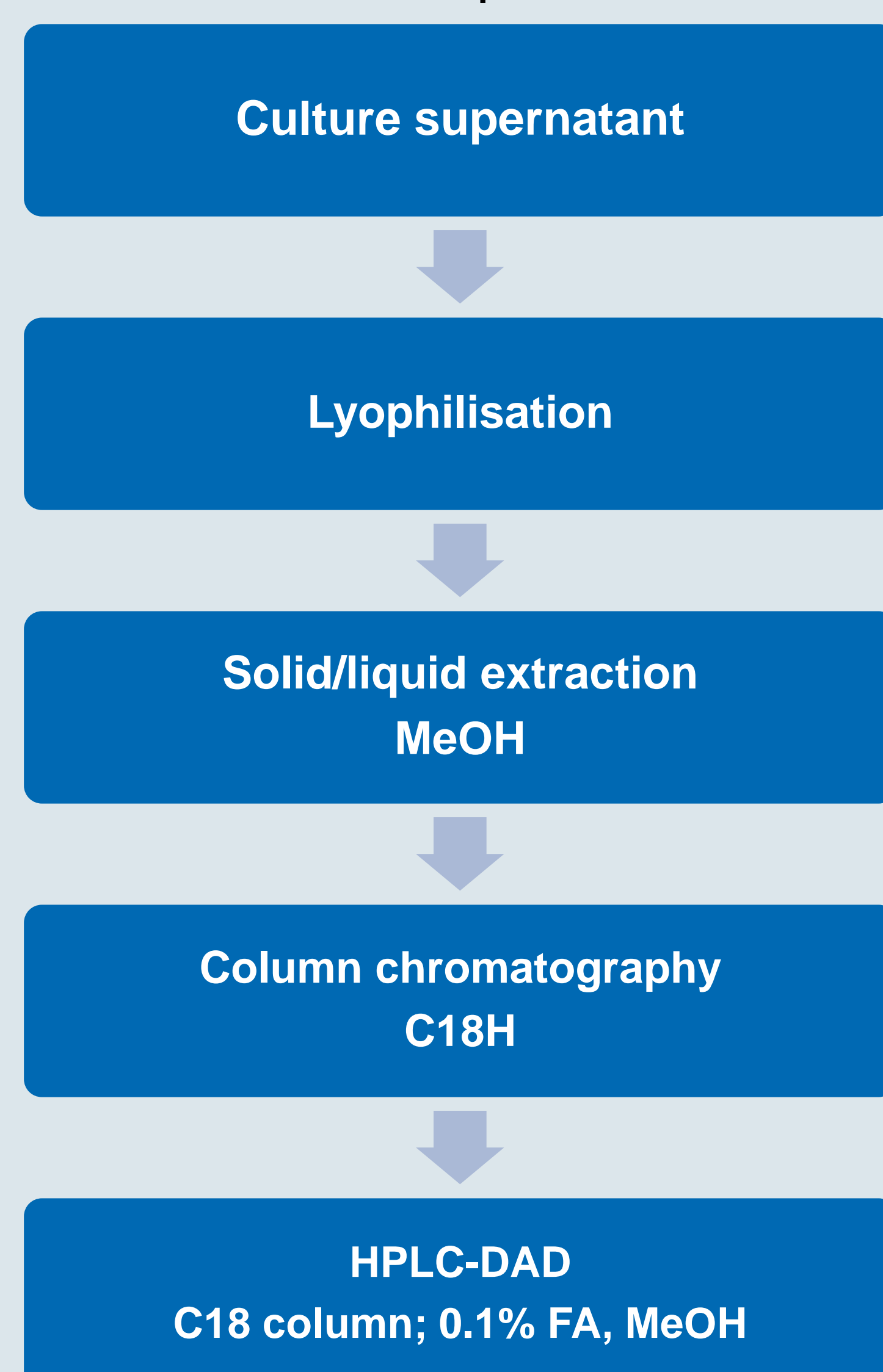


Fig. 3: Column chromatography of a fungal extract.

Experiments for structure elucidation were started with an isolate of 97% purity, including HRMS, 1D-NMR and 2D-NMR but the structure was not yet fully elucidated.

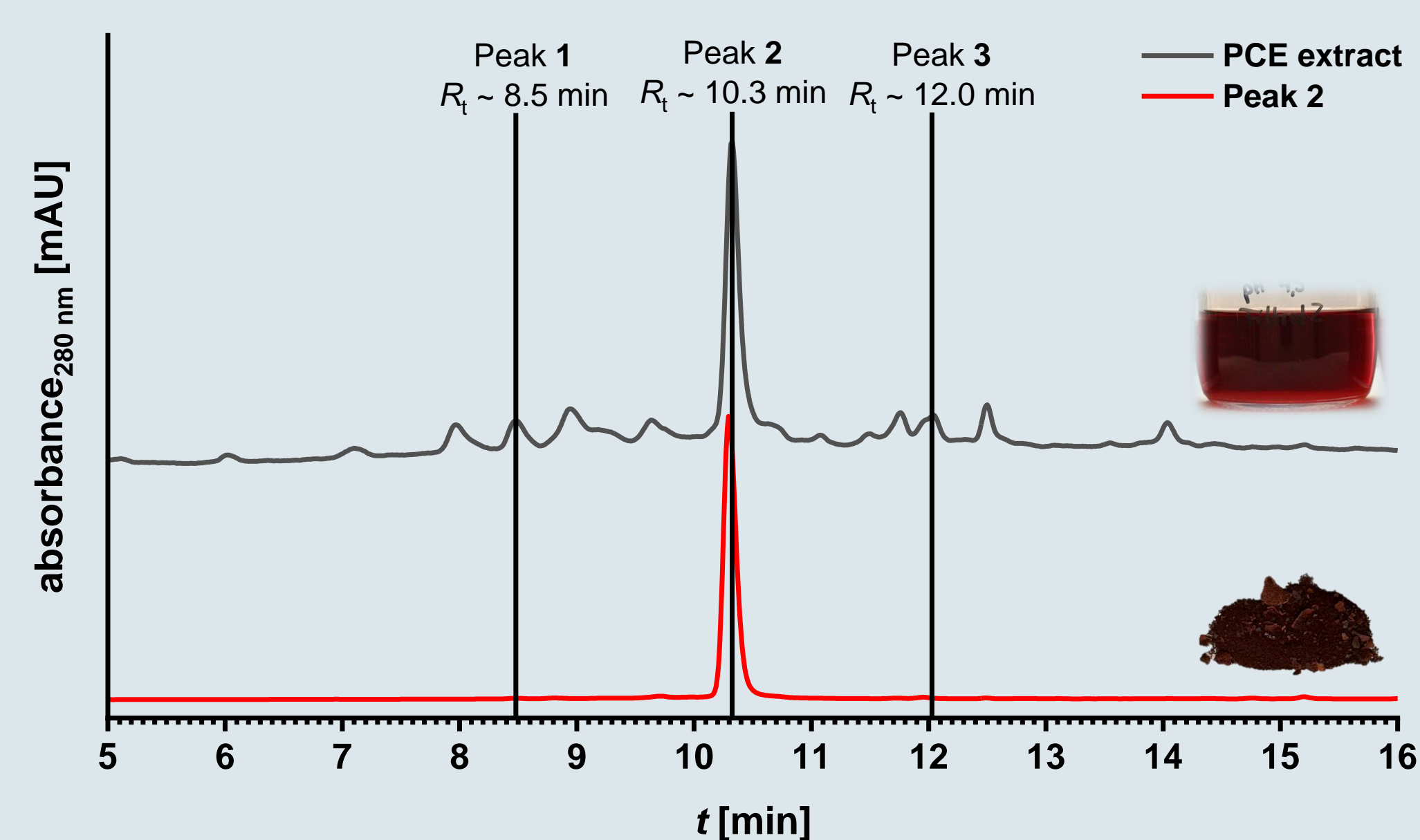


Fig. 4: HPLC-DAD chromatograms of a fungal extract and purified Peak 2.

## Conclusion

It was demonstrated that at least one of the three previously identified candidates exhibits sufficient stability and is suitable for colouring model food systems. This underlines the applicability of dyes from Basidiomycota as alternative natural colourants. The main colouring compound was isolated, and structural elucidation experiments were initiated. For the industrial application of these pigments, toxicological safety studies need to be performed on the one hand, and on the other hand, the production capacity needs to be upscaled in pilot plants.