Documenting *Penicillium* diversity in the Western Cape of South Africa

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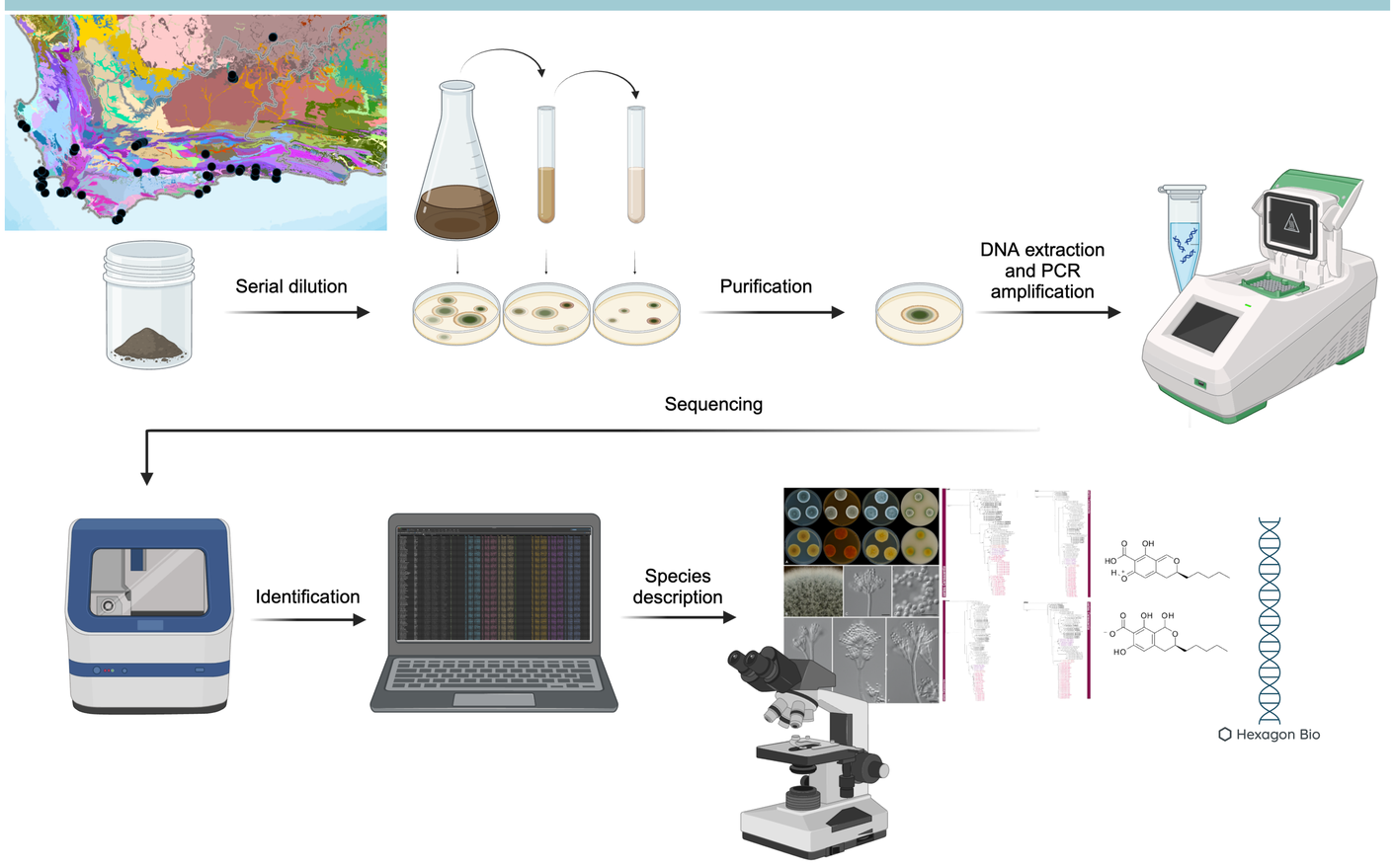
Introduction

- South Africa is a megadiverse country, having 3 of the worlds 36 biodiversity hotspots and ± 24 000 plant species, 50% of which are endemic[1, 2]
- This botanical diversity seems to translate into fungal diversity with *Penicillium* that is very diverse especially in the Western Cape
- Of the 611 currently accepted species, 242 have been recorded in South Africa, of which 47 were described as new[3, 4, 5, 6, 7]
- Data indicate that many new species are still undiscovered.

Aim

The aim of this study was to conduct a comprehensive survey to uncover the diversity of *Penicillium* lurking at the southern tip of Africa.

Materials and Methods



Results and Discussion

- A total of 110 soil samples were collected from 35 collection sites spanning 6 biomes and 27 bioregions
- 850 strains of *Penicillium* were isolated, identified and preserved
- Strains represented 140 species, classified in the 2 subgenera, 17 sections and 43 series
- We identified 37 potential new species
- Genomes for all species have been sequenced and will greatly contribute to future knowledge on the genus
- High infraspecies variation identified in this study will allow for more robust species identification in the future
- This study contributes knowledge towards *Penicillium* species distributions and confirms the Western Cape as a hotspot for *Penicillium* diversity.

Fig 1. Maximum likelihood tree based on beta-tubulin, showing identities of *Penicillium* strains isolated during this study. The tree was rooted to *Aspergillus niger* CBS 554.65[T]. Strains included in this study are shown in bold. Bootstrap values above 80% are displayed on the appropriate branch. T = ex-type

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References

[1]South African National Biodiversity Institute (2006-2018); [2]Mamathaba et al. (2022); [3]Houbraken et al. (2014); [4]Visagie et al. (2016a); [5]Visagie et al. (2021); [6]Visagie et al. (2015); [7, 8]Visagie et al. (2014); (2016b)

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