

## Identification and characterization of *Candida* spp. from denture stomatitis patients

Gonçalo Carvalho<sup>1</sup>, Juliana Lourenço<sup>1</sup>, Ana Abrantes<sup>1,2</sup>, Mónica Fernandes<sup>1,2</sup>, Maria José Correia<sup>1,2</sup>, Ana Sofia Duarte<sup>1,2</sup>, Raquel M Silva<sup>1,2</sup>

<sup>1</sup> Universidade Católica Portuguesa, Faculty of Dental Medicine, Viseu, Portugal.

<sup>2</sup> Universidade Católica Portuguesa, Centre for Interdisciplinary Research in Health, Viseu, Portugal.

### Background

*Candida* spp. are opportunistic pathogens that normally colonize mucosal tissues, from oral cavity to the urogenital tract. Infection by this fungi is associated with an easy dissemination, ability to colonize surfaces and the development of cross-resistance to antifungal drugs.<sup>1</sup>

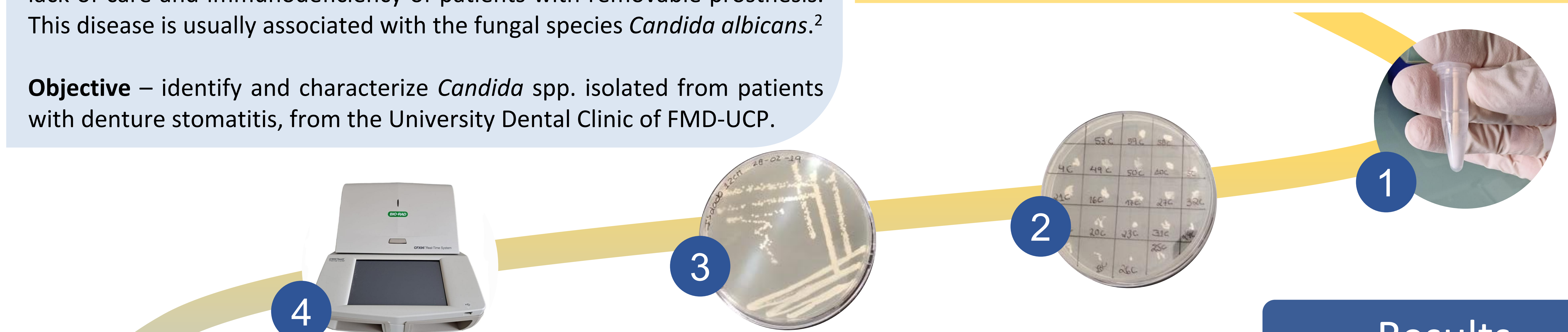
**Fluconazole** is an antifungal drug with a broad-spectrum activity for both treatment of patients and prophylaxis. It can lead to the development of resistant strains, associated with high morbidity and mortality rates.

**Denture Stomatitis** is a mucosal inflammation due to poor oral hygiene, lack of care and immunodeficiency of patients with removable prosthesis. This disease is usually associated with the fungal species *Candida albicans*.<sup>2</sup>

**Objective** – identify and characterize *Candida* spp. isolated from patients with denture stomatitis, from the University Dental Clinic of FMD-UCP.

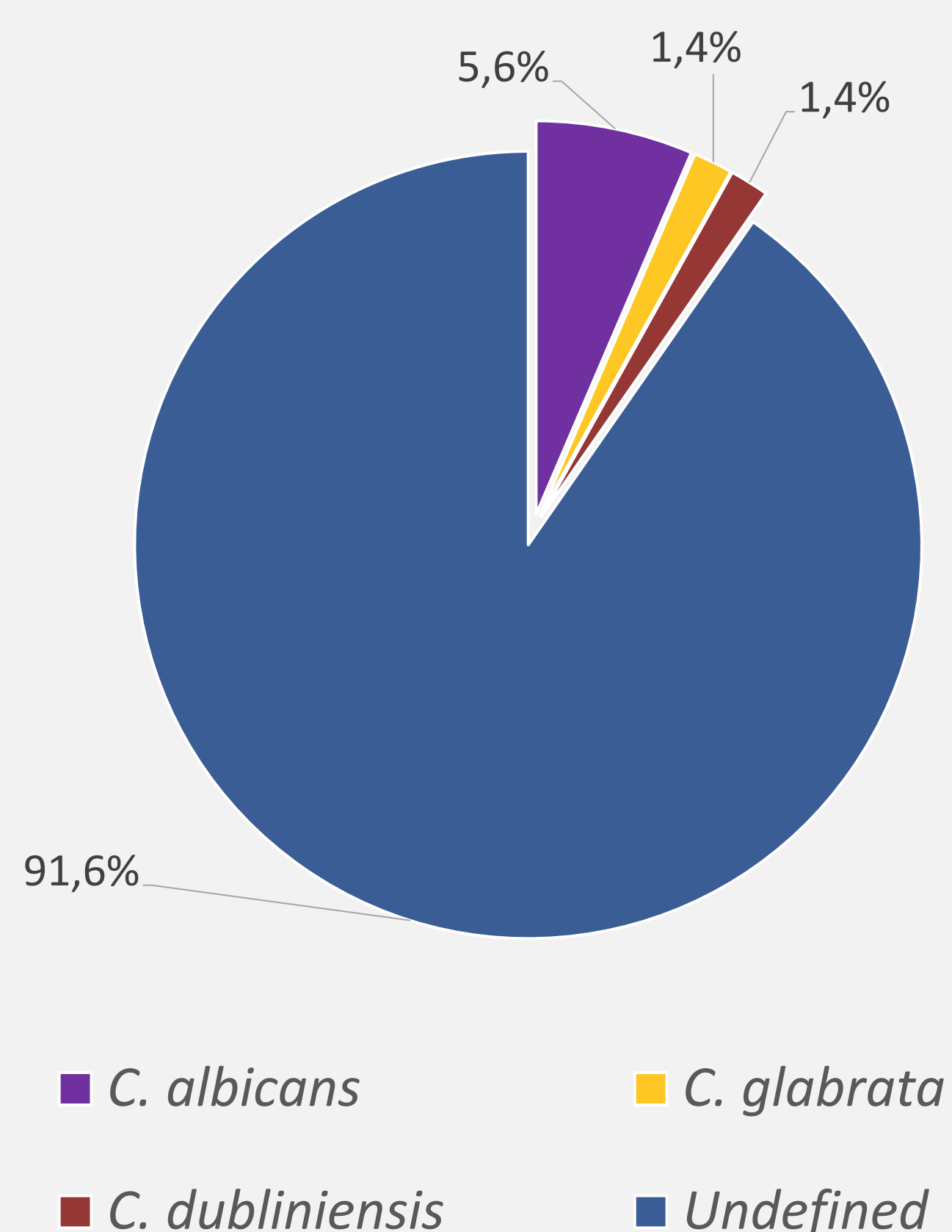
### Methods

- Sample collection** - Biofilm from the palate of patients with denture stomatitis.
- Selection** – Separation of isolates in SDA culture medium plates.
- Isolation of single colonies** – Preparation of a sub-culture of the clinical isolates in order to select an isolated colony.
- Characterization** – Determination of susceptibility profiles to fluconazole; hemolytic activity; identification of the different *Candida* spp. using PCR techniques.<sup>3</sup>
- Sequencing** – Analyses of the electropherograms and BLAST sequences to compare and identify the different isolates.

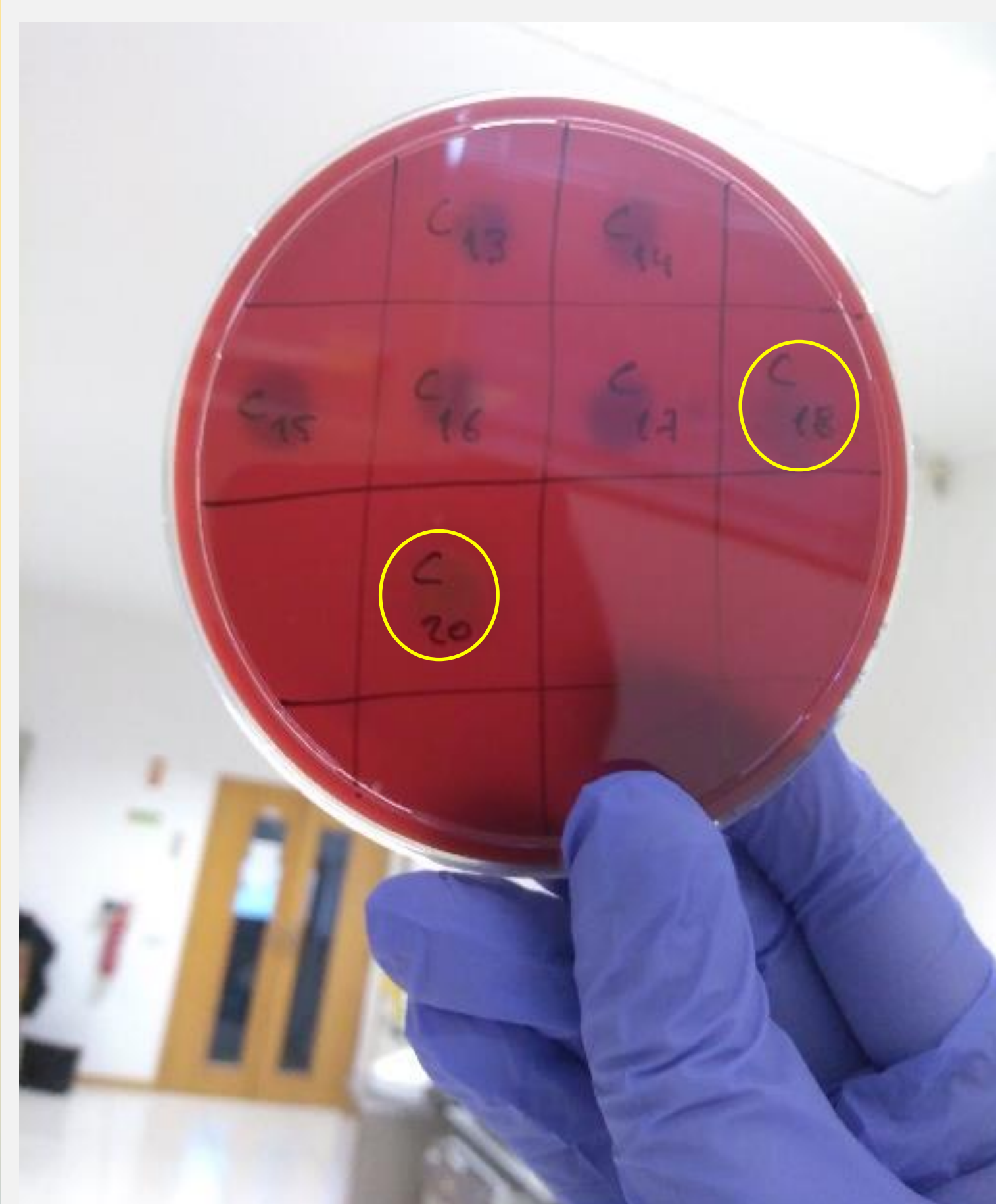


### Results

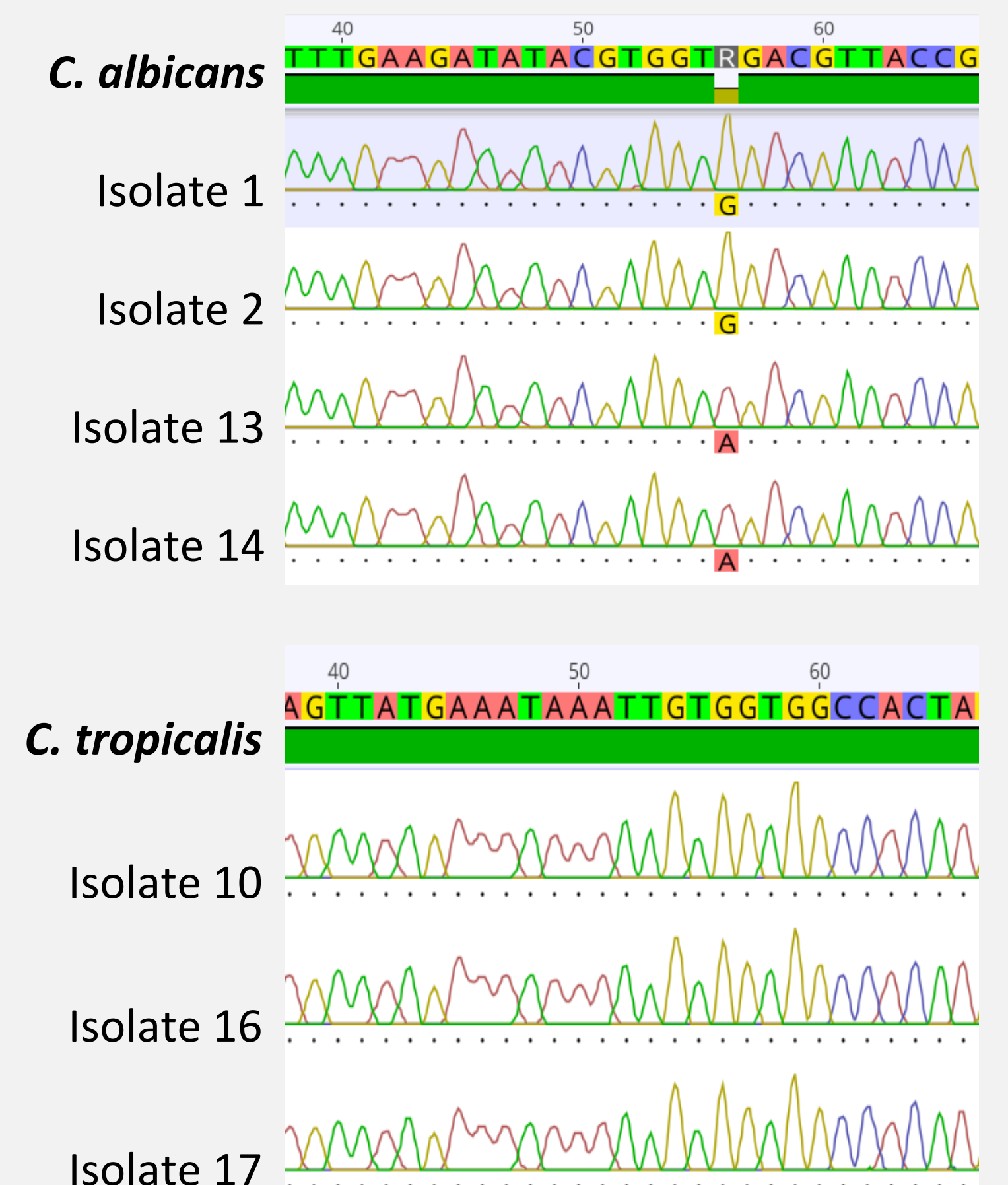
#### *Candida* spp. identified by Multiplex PCR technique



#### Hemolytic activity



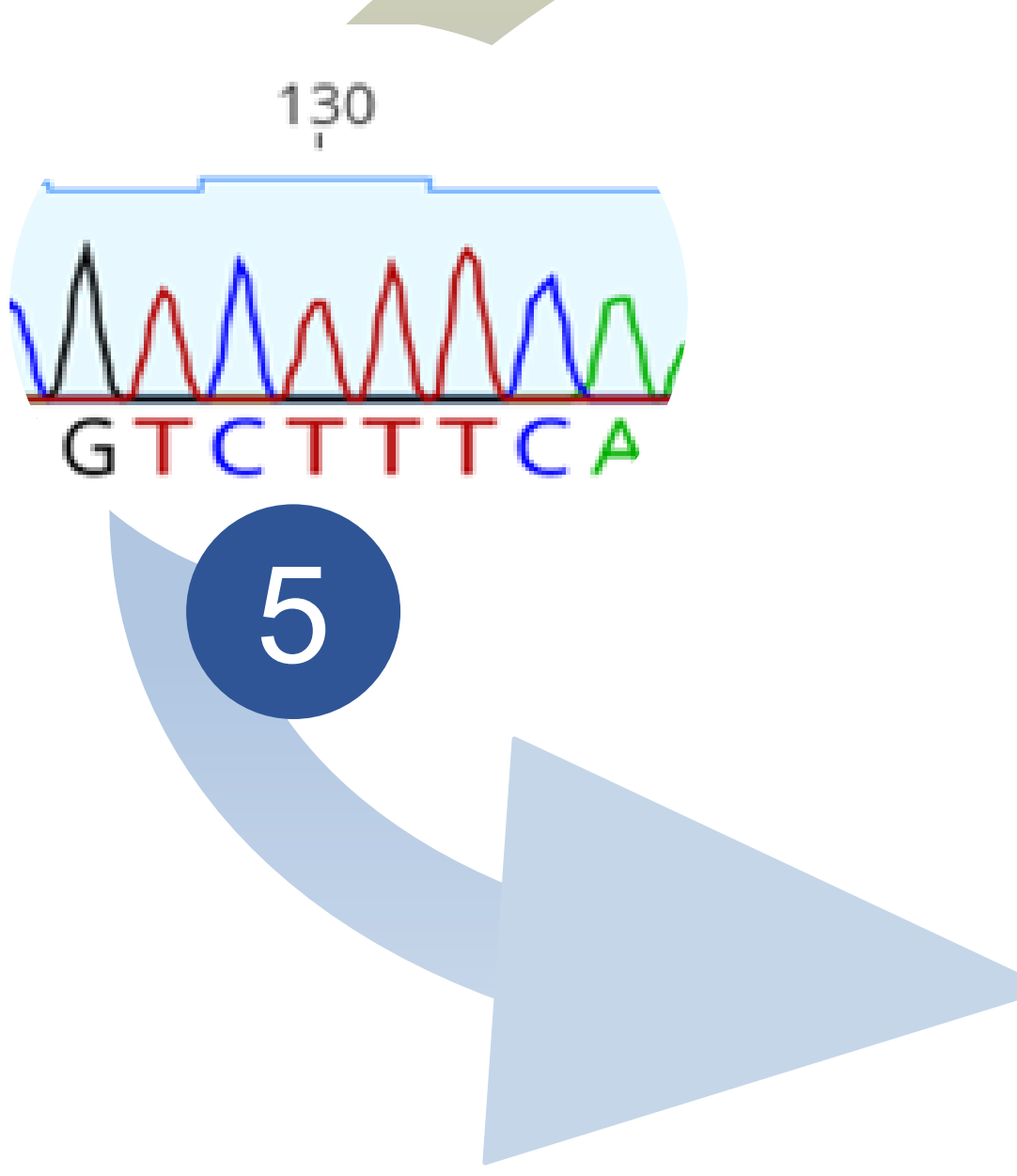
#### Sequencing of clinical isolates



### Conclusion

- Approximately 10% of all isolates were identified through multiplex PCR, corresponding to several different *Candida* spp.
- Some isolates presented hemolytic activity; none of the isolates tested so far showed resistance to fluconazole.
- Sequencing of the isolates that were not identified by multiplex PCR showed highest similarity with *C. albicans* and *C. tropicalis* sequences.

These results show that *C. albicans* and *C. tropicalis* are the most common *Candida* spp. identified in patients with denture stomatitis.



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### References

1. Branco J, et al. Fluconazole and Voriconazole Resistance in *Candida parapsilosis* Is Conferred by Gain-of-Function Mutations in *MRR1* Transcription Factor Gene. *Antimicrob Agents Chemother.* 2015; 59(10):6629-33. <https://doi.org/10.1128/AAC.00842-15>
2. Azevedo L, et al. Prevalence of prosthetic stomatitis and risk factor in a sample of institutionalized elderly. *JRMDS.* 2021; 5:16-18. <http://hdl.handle.net/10400.14/36606>
3. Magalhães J, et al. Molecular techniques and target selection for the identification of *Candida* spp. in oral samples. *Appl. Sci.* 2022; 12(18): 9204. <https://doi.org/10.3390/app12189204>