

## Sporothrix spp. in Chile

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Sporotrichosis is an infection caused by a dimorphic fungus belonging to *S. schenckii* complex [1], is considered an occupational disease, since it affects mainly gardeners or any people with a puncture wound or animal bite [1,2]. In Chile sporotrichosis is a very infrequent disease unlike most countries of Latin America, and its form of presentation is almost exclusively lymphocutaneous in limbs [3,4].

Taxonomic reports have demonstrated that the complex include *S. schenckii* sensu stricto, *S. brasiliensis*, *S. globosa* and *S. luriei* (clinical clade) [6]. Additionally other species; *S. mexicana*, *S. pallida*, and *S. chilensis*, have been occasionally associated to infections in humans (environmental clade) [1,5,6]. They show different virulence and clinical presentation. *S. schenckii* sensu stricto and *S. brasiliensis* can cause cutaneous and deep injury; instead *S. globosa* that has been described mainly at lymphocutaneous infections (3), and *S. pallid* that has been described in one case of keratitis [7].

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In 2012 for the first time in Chile, Cruz et al. identified *S. globosa* in a female elderly patient, attended by lymphocutaneous sporotrichosis in her upper limb [3]. Later, Rodriguez et al. identified a new specie, *S. chilensis*, from onychomycosis as well as environment.

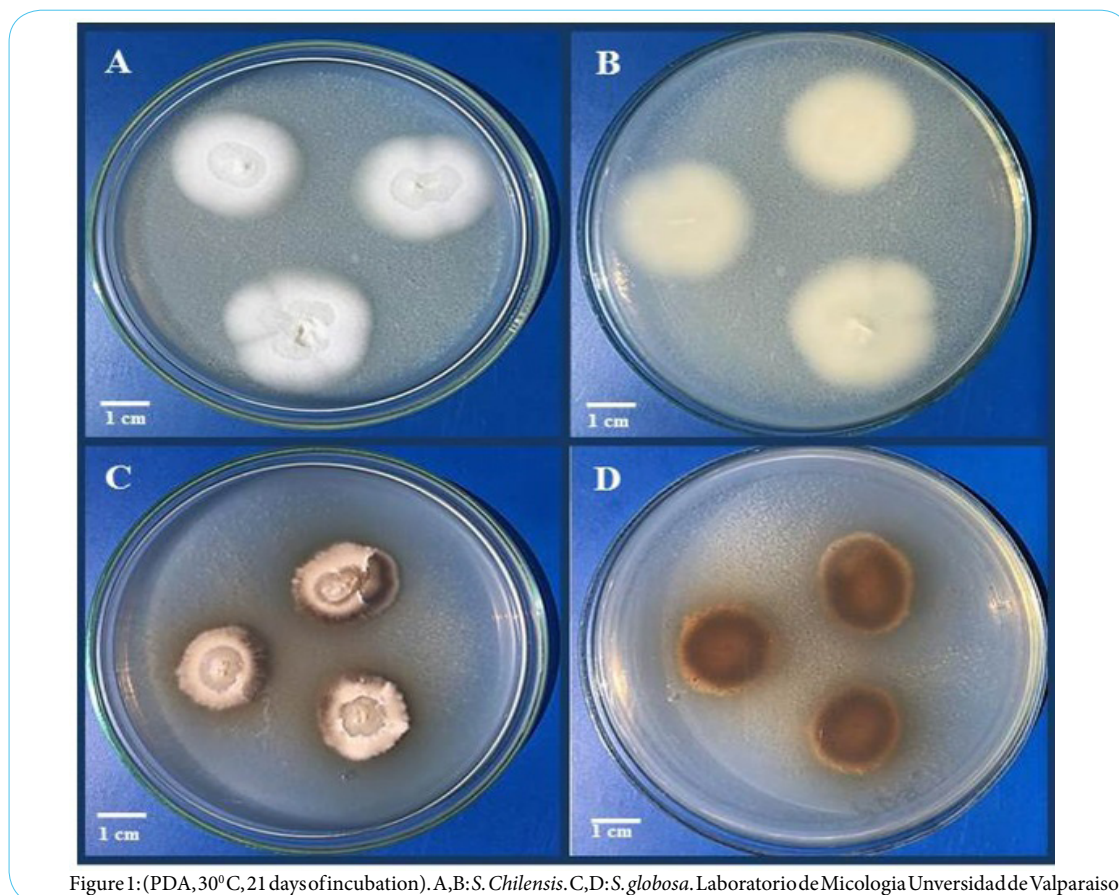


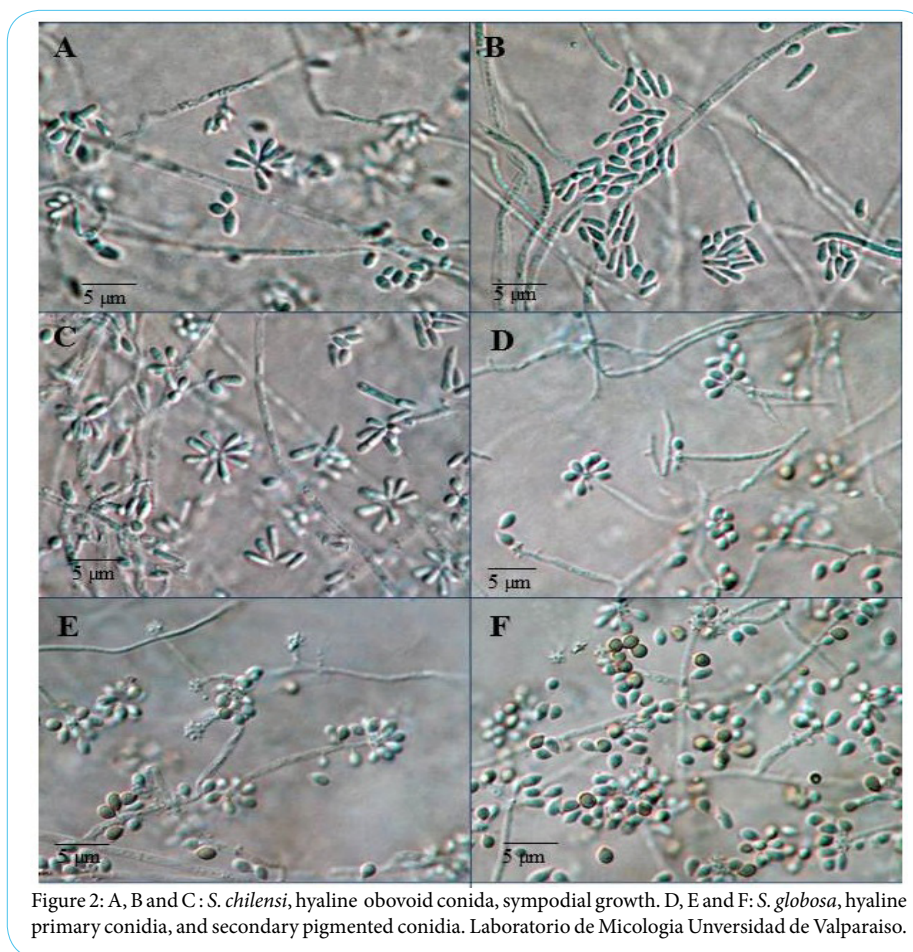
Figure 1: (PDA, 30°C, 21 days of incubation). A, B: *S. Chilensis*. C, D: *S. globosa*. Laboratorio de Micología Universidad de Valparaíso.

For the year 2011 sporotrichosis cases published in Chile just began to include the identification of the species [5,8,9], however, it has to be considered that only in 2007 Marimon et al. proposed a morphophysiological key to differentiate clinically relevant species of the complex, the basis of the key was: conidia pigmentation, grow at different range of temperature on PDA (potato-dextrose agar), and sugar assimilation [1].

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Morphophysiological features of *S. globosa* incubated at 30°C in PDA for 21 days are [1]: colonies growing up to 35 mm of diameter, becoming cream coloured until second week, then turn to dark (Figure 1). Microscopic characteristic during the first week are thin branched hyphae, hyaline and septate with abundant hyaline conidia in several clusters towards the apex of the conidiogenous cell. Globose to sub globose primary conidia shows sympodial proliferation, 2-5 x 1-3 µm (Figure 2). After second week of incubation, secondary pigmented conidia occur, globose to sub globose 2.5-4 x 2-3.5 µm.

*S. chilensis* features in PDA agar at 30°C after 21 days of incubation are [5]: Colonies attained a diameter of 66 to 71 mm (Figure 1), white coloured that remains at time (Figure 1). Microscopic characteristic are hyphae hyaline (1µm), conidiogenous cells usually terminal, primary conidia hyaline, obovoidal, 2.5 – 4.5 x 1.2 – 1.9 µm (Figure 2). Also sessile conidia emerge from undifferentiated hyphae, usually globose, 1.4 – 2.4 x 1.6 – 2.8 µm.

Dimorphism was brought about by incubation in brain heart infusion broth at 37°C. The yeast phase shows single and multiple budding, 2.5 -7 x 2.1 – 4.5 µm (3,5).

Morphophysiology is helpful to an inceptive approach of genus identification, but molecular identification of calmodulin and β-tubulin genes through gene sequencing is a fundamental tool, since restrict misidentification secondary to a variability in the morphology of some strains [1,5].

Virulence studies in murine models have evidenced that *S. globosa* and *S. chilensis* show lower virulence, that could explain the less incidence of the disease in Chile, and the absent of deep infections [10], unlike other Latin American countries.

Both diagnostic of sporotrichosis and identification of species are challenging points, it compel us to take over the tools, to obtain a suitable diagnostic and appropriate treatment for the patients.

### Competing Interests

The authors declare that they have no competing interests.

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