

***Geodermatophilus marinus* sp. nov. associated to the marine sponge *Scopalina ruetzleri* from São Pedro and São Paulo Archipelago, Equatorial Atlantic, Brazil**

Silva, F. S. P.<sup>1,4</sup>, Souza, D. T.<sup>1,4</sup>, Zucchi, T.D.<sup>1</sup>, Vasconcellos, R.L. F.<sup>1</sup>, Pansa, C. C.<sup>1,4</sup>, Moraes, F. C.<sup>2,3</sup>,  
Melo, I. S.<sup>1\*</sup>

- 1- Laboratory of Environmental Microbiology, EMBRAPA Environmental (Rodovia SP 340, km 127,5–Tanquinho Velho – Jaguariuna, SP – CEP 13820-000).
- 2- Museu Nacional, Universidade Federal do Rio de Janeiro. (Quinta da Boa Vista – São Cristóvão – Rio de Janeiro, RJ – CEP: 20940-040)
- 3- Instituto de Pesquisas Jardim Botânico do Rio de Janeiro (Rua Pacheco Leão, 2040 - Horto, Rio de Janeiro, RJ - CEP: 22460-030)
- 4- Luiz de Queiroz College of Agriculture (ESALQ), University of São Paulo (Av. Pádua Dias, 11 – Piracicaba, SP - CEP 13418-900)

**Abstract**

A novel gram-positive, aerobic, actinobacterial strain, CMAA 1362<sup>T</sup>, was isolated from marine sponge *Scopalina ruetzleri* collected in the São Pedro and São Paulo Archipelago. São Pedro and São Paulo Archipelago (former Saint Paul's Rocks) liaison the São Paulo Fracture Zone, 1,010 km northeast from Brazilian mainland in the Equatorial Atlantic Ocean, Brazil (0°54'57"N; 29°20'41"W). It is one of the smallest and most isolated archipelagos in the world, with 420 m across, 18 m height and 1.7 ha. The archipelago is under the influence of the South Equatorial Current, driving surface water from east to west, and the Equatorial Undercurrent, moving water in the opposite direction between 40-150 m depth. Tissue samples of the marine sponge *Scopalina ruetzleri* were collected by SCUBA between 20 and 30 m depth at the East Face of São Pedro and São Paulo Archipelago in August, 2013. This is the first report of marine species of the genera *Geodermatophilus*. The isolate grew in a temperature range between 15-30°C and pH 6.0-10.0, showed high halotolerance 5-12.5% NaCl (w/v) and black-dry and circular colonies on cultures media. Chemotaxonomic and molecular characteristics of the isolate match those described for members of the genus *Geodermatophilus*. The DNA G + C content of the genome strain was 69.41 mol%. The major cellular fatty acids were found to be the branched-chain saturated acid iso-C<sub>16:0</sub> and iso-C<sub>15:0</sub>, as well as C<sub>17:1ω8c</sub> and C<sub>18:1ω9c</sub>. Molecular analysis of 16S rRNA gene sequence showed 97.2 - 98.4% of pairwise sequence identity with members of the genus *Geodermatophilus*: *Geodermatophilus obscurus* (98.4%), *Geodermatophilus siccatus* (98.3%), *Geodermatophilus africanus* (98%), *Geodermatophilus ruber* (97.3%) and *Geodermatophilus tzadiensis* (97.1%). Based on the results of this polyphasic taxonomic description, the strain type CMAA 1362 represents a novel species, for which the name *Geodermatophilus marinus* sp. nov. is proposed.

**Keywords:** *Geodermatophilus marinus*, Polyphasic taxonomy, Actinomycetes, Oceanic Island, Biodiversity Fometo Agency: CNPq