

Characterization of a bacterial isolate from Madunagala thermal spring in the Hambanthota district, Sri Lanka

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In Sri Lanka ten thermal springs are found along a narrow belt running from Hambanthota to Trincomalee with temperatures ranging from 35°C to 61°C. Madunagala thermal spring is the only thermal spring found in the Southern Province of Sri Lanka. It is located in the Hambanthota district, at Latitudes 6.25° North and Longitudes 80.98° East. The spring is also renowned as Mahapelessa or Sooriyawewa thermal spring. A study was conducted with the objective of isolating and characterizing thermophilic/ thermostable microorganisms from several thermal springs of Sri Lanka. One of the isolates from Madunagala had deep orange coloured, shiny, dome shaped colonies with entire margins and smooth appearance. This bacterium was a Gram positive short rod having an optimum growth temperature of 45°C at pH 7 and NaCl concentration 2.0% (w/v). Growth temperature, pH and NaCl concentration maxima were 65°C, 10 and 3.5% w/v respectively. It was identified as *Exiguobacterium marinum* by 16S RNA sequencing that was carried out using 27F;5' AGAGTTTGATCCTGGCTCAG3' and 1492R; 5'TACGGYTACCTTGTTACGACTT3' universal primers. The type strain of this bacterium was previously isolated, identified and described by Kim *et. Al* (2005) from the Yellow Sea, Korea. Due to the presence of a marine bacterium, *Exiguobacterium marinum* which is able to withstand high salt concentrations (3.5% w/v), it could be speculated that a possible connection may have existed in the geological past between Madunagala thermal spring and the marine environment, which is around 35 km away from the spring.

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