

Isolation and Characterization of a New *Arthrospira* Strain

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Z. Naturforsch. **63c**, 144–150 (2008); received June 5/July 26, 2007

A filamentous microorganism, morphologically similar to the cyanobacterium *Arthrospira*, was isolated from Mangueira Lagoon in Brazil, from which *Arthrospira* has not previously been isolated. Random amplified polymorphic DNA (RAPD) comparison with the standard *Arthrospira platensis* strains LEB 52 and Paracas indicated that the organism isolated was an *Arthrospira* isolate, which we denominated strain LEB 18. The RAPD analysis showed conserved sequences which indicated that the three strains belonged to the same genus, and were all *Arthrospira* species, but there were sufficient differences between them suggesting that they were separate strains. The strain LEB 18 was cultivated in undiluted Zarrouk medium and in 60% and 20% (v/v) Zarrouk medium diluted with sterilized Mangueira Lagoon water (MLW) using illuminance rates of 32.5, 45.5 and 58.5 $\mu\text{mol m}^{-2} \text{s}^{-1}$ according to a complete 3^2 factorial design with a triplicate central point. The strains LEB 52 and Paracas were cultivated in the conditions central point. Our new isolate produced the highest specific growth rate ($\mu_{\text{max}} = 0.22 \text{ d}^{-1}$) in 60% Zarrouk medium diluted with MLW and illuminated with 58.5 $\mu\text{mol m}^{-2} \text{s}^{-1}$ and the highest protein content (86.0% w/w).

Key words: *Arthrospira*, Brazil, Mangueira Lagoon