

## Fatty acid profiles of Antarctic cyanobacteria Leptolyngbya

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### Abstract

**Aim:** Antarctic cyanobacteria may represent a potential resource of new and unique compounds with interesting capabilities. Profiling of fatty acids in Antarctic cyanobacteria can provide an overview of potential fatty acids present in them, that can be utilised in future applications.

**Methodology:** In total, 4 cyanobacteria previously isolated from Antarctic polar ice was used in this study. Molecular identification using 16S rRNA gene was used to ascertain their identities as Leptolyngbya spp. and their fatty acid profiles were determined using GCMS.

**Results:** Morphologically, these cyanobacteria were found similar to Leptolyngbya sp. Analysis of 16S rRNA gene sequences amplified further confirmed their identity and were designated as Leptolyngbya sp. A, B, D and E. Following fatty acid analysis using GCMS, it was determined that unsaturated fatty acids predominated the fatty acid profiles for Leptolyngbya sp. A, B and D, while saturated fatty acid was found dominant in Leptolyngbya sp. E. Leptolyngbya sp. D contained almost 100% of linoleic acid, whilst Leptolyngbya sp. A and Leptolyngbya sp. B contained 59.35% and 83.33% of linoleic acid, respectively. Besides linoleic acid, palmitoleic acid (18.45%), oleic acid (19.45%) and lauric acid (2.74%) were also present in Leptolyngbya sp. A. As for Leptolyngbya sp. B, other than linoleic acid, only oleic acid (16.67%) was detected.

**Interpretation:** Findings from this study demonstrate that the Antarctic Leptolyngbya spp. A, B and D identified in this study possess high content of unsaturated fatty acids, while only saturated fatty acid was present in Leptolyngbya sp. E. Fatty acid profiles revealed the potential of these Antarctic Leptolyngbya species to be further exploited for other applications.

### Keywords

**Author Keywords:** 16S rRNA; Antarctic region; Cyanobacteria; Fatty acid profiles; Leptolyngbya

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