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Impact of different nitrogen sources on the growth of *Arthrospira* sp. PCC 8005 under batch and continuous cultivation - a biochemical, transcriptomic and proteomic profile.

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1 Impact of different nitrogen sources on the growth of *Arthrospira* sp. PCC 8005 under
2 batch and continuous cultivation - a biochemical, transcriptomic and proteomic profile.

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13
14 **Abstract:**

15 The aim of the present study was to evaluate the effects of varying concentrations of different
16 nitrogen sources (individually or in combination) on the biochemical, transcriptomic and
17 proteomic profiles of *Arthrospira* sp. PCC 8005 under batch and continuous modes. In batch
18 mode, while ammonium showed a repressive effect on nitrate-assimilation pathway of the
19 cyanobacteria; better growth and nutrient uptake rate were observed in presence of urea than
20 nitrate. The inhibitory effect of ammonium was further confirmed by the continuous
21 photobioreactor study wherein the nutrient feed was transiently replaced from nitrate to
22 ammonium (28 mM turbidostat regime). The changes in lipid, exopolysaccharide,

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