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Evaluation of the dynamics of microalgae population structure and process performance during piggery wastewater treatment in algal-bacterial photobioreactors

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## ACCEPTED MANUSCRIPT

1	Evaluation of the dynamics of microalgae population structure and
2	process performance during piggery wastewater treatment in algal-
3	bacterial photobioreactors
4 5	Dimas García <sup>1,2</sup> , Esther Posadas <sup>1</sup> , Saúl Blanco <sup>3</sup> , Gabriel Acién <sup>4</sup> , Pedro García-Encina <sup>1</sup> , Silvia Bolado <sup>1</sup> , Raúl Muñoz <sup>1</sup> *
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<ul><li>14</li><li>15</li></ul>	ABSTRACT
16	The dynamics of microalgae population during piggery wastewater (PWW) treatment in
17	four open photobioreactors operated at 27 days of hydraulic retention time, and
18	inoculated with Chlorella sp. (R1), Acutodesmus obliquus (R2), Oscillatoria sp. (R3)
19	and in the absence of inoculum (R4), were evaluated for 6 months. In addition, the
20	algal-bacterial biomass concentration, removal of organic matter, nutrients and heavy
21	metals were also assessed. The results revealed a high diversity and rapid variations in
22	the structure of microalgae populations, <i>Chlorella</i> sp. being dominant in R4 throughout
23	most of the operational period. Steady state average biomass concentration ranged from
24	2445-2610 mg/L in R1-R3 to 3265 mg/L in R4. No significant differences were
25	recorded in the removal efficiencies (REs) of total organic carbon (86-87%), inorganic

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