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Energy-producing electro-flocculation for harvest of *Dunaliella Salina*

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1 Energy-producing electro-flocculation for harvest of *Dunaliella Salina*

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8 Abstract

9 In this study, an efficient electro-flocculation process for *Dunaliella Salina* with energy
10 production by aluminum-air battery has been successfully applied. The formed
11 aluminum hydroxide hydrates during discharging of battery were positively charged,
12 which have a great potential for microalgae flocculation. The precipitation of aluminum
13 hydroxide hydrates by algae also could improve the performance of aluminum-air
14 battery. The harvesting efficiency could reach 97% in 20 mins with energy production
15 of 0.11 kWh/kg. This discharging electro-flocculation (DEF) technology provides a new
16 energy producing process to effectively harvest microalgae.

17 **Keyword:** Electro-flocculation; *Dunaliella Salina*; Aluminum-air battery; Energy
18 production

19 1. Introduction

20 With high growth rate and lipid accumulation capability, microalgae has attracted
21 much attention as a feedstock for biodiesel production (Misra et al., 2014). The harvest

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