

## **Electronic Supplementary Information for:**

### **The establishment of marine focused biorefinery for bioethanol production using seawater and a novel marine yeast strain**

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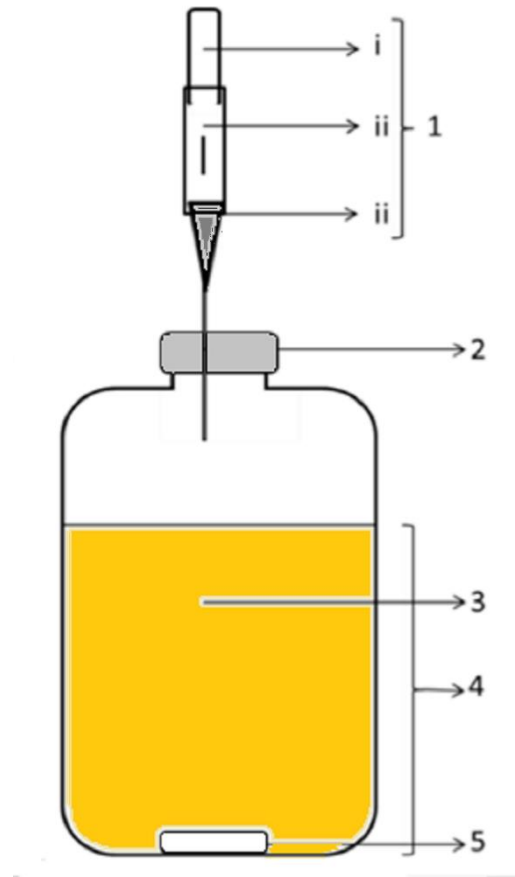
#### **Contents**

Seven pages (including the cover sheet)

One Table (ST1), four figures (SF1 to SF4) and References

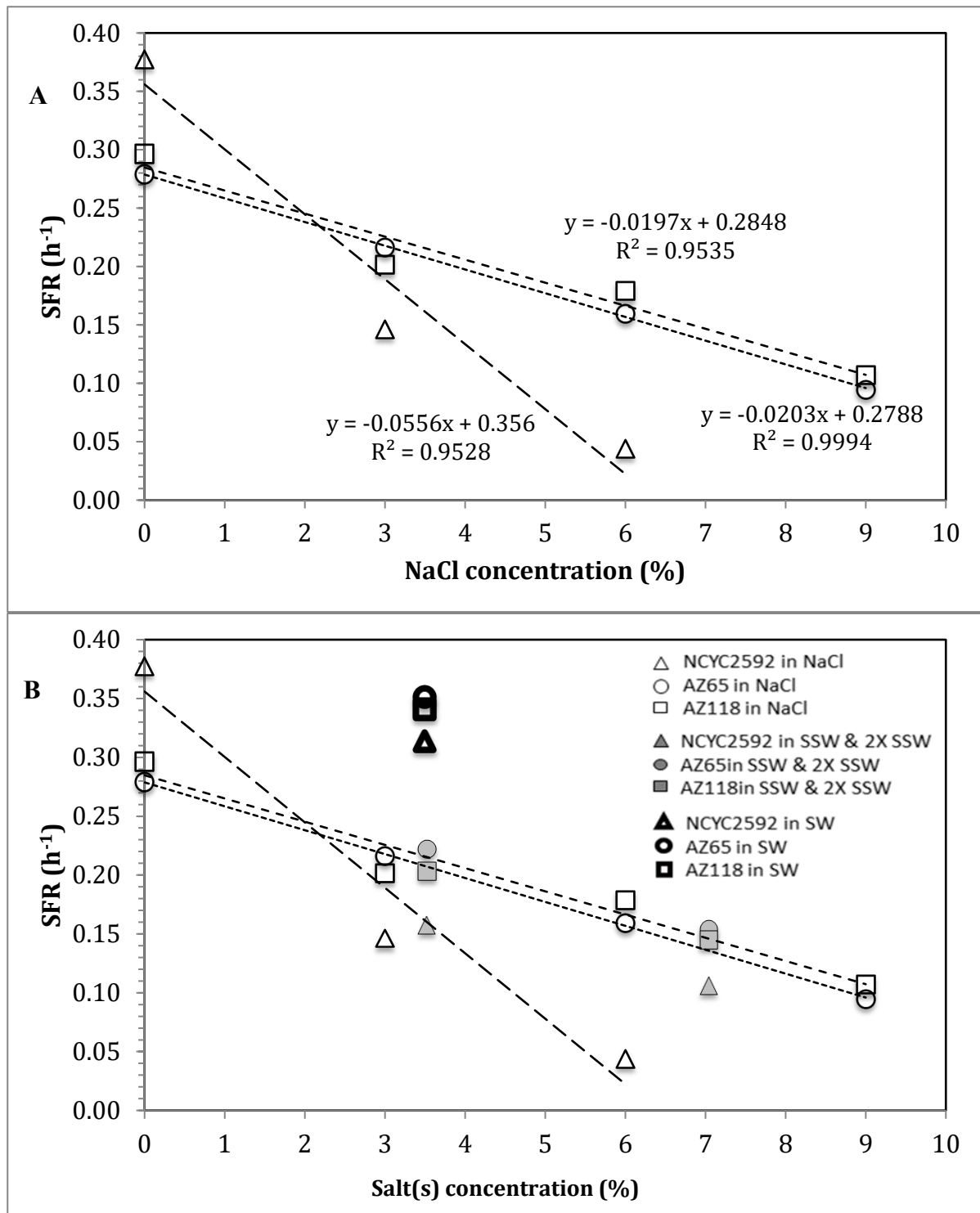
**Table ST1. The composition of synthetic seawater used in this study.**

<b>Component</b>	<b>Concentration g/L</b>	
	<b>Standard (1X SSW)</b>	<b>Double strength (2X SSW)</b>
<b>NaCl</b>	27.133	54.266
<b>MgCl<sub>2</sub></b>	2.504	5.008
<b>MgSO<sub>4</sub></b>	3.382	6.764
<b>CaCl<sub>2</sub></b>	1.167	2.334
<b>KCl</b>	0.742	1.484
<b>NaHCO<sub>3</sub></b>	0.207	0.414
<b>NaBr</b>	0.085	0.17
<b>Total salts</b>	<b>35.22</b>	<b>70.44</b>



**SF1: Schematic diagram of Mini Fermentation Vessel (MFV) for anaerobic fermentation**

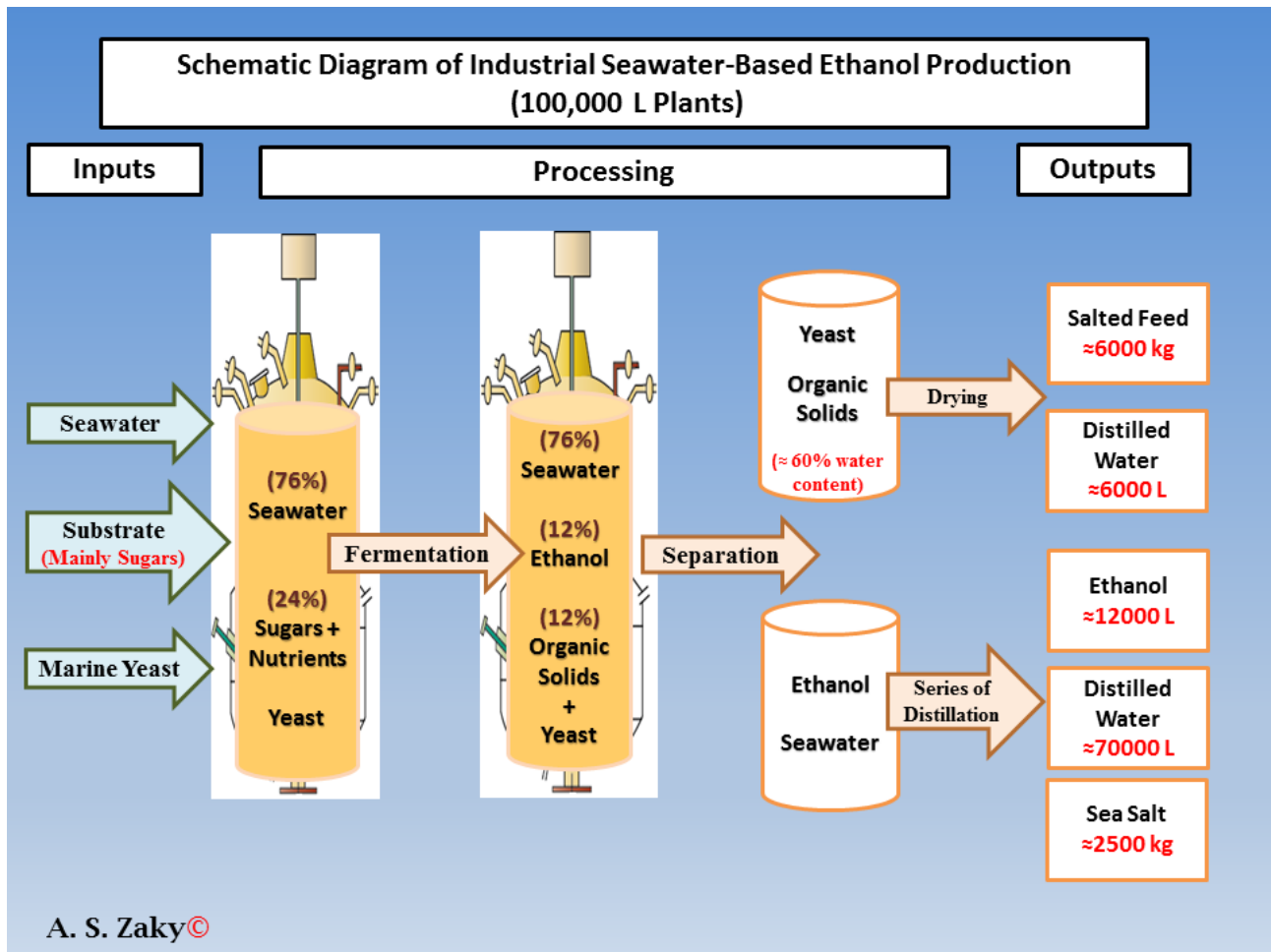
1, Bunsen valve (i, Durham tube; ii, Silicone tubing with a small cut in the middle; iii, Hypodermic needle), 2, rubber septum with metal crimp; 3, glass bottle; 4, working volume (100 mL); 5, magnetic flea.



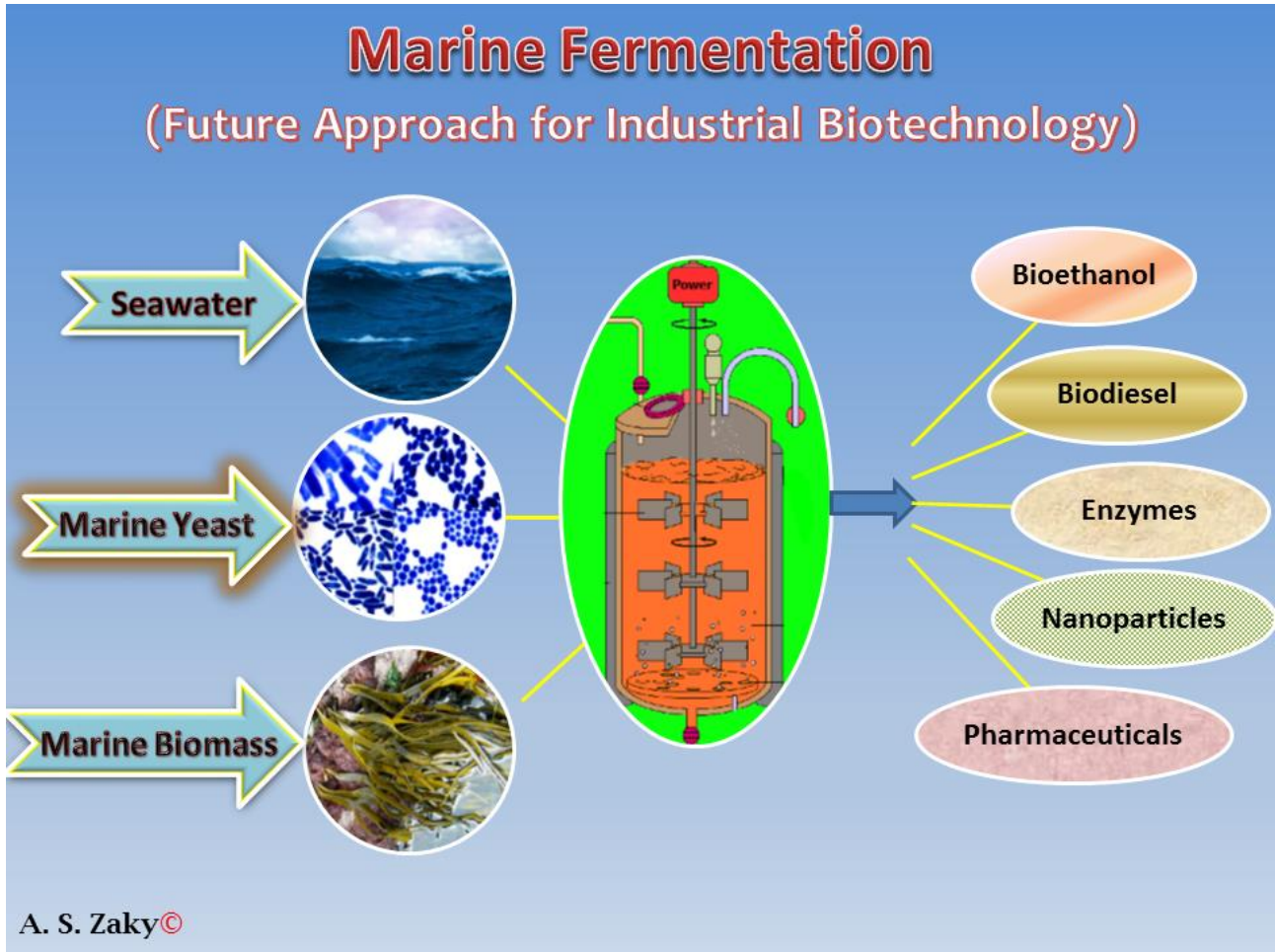
**SF2: Specific Fermentation Rate (SFR) of marine yeasts (*S. cerevisiae* AZ65, AZ118) and the reference terrestrial yeast (*S. cerevisiae* NCYC 2592) in media containing different salt concentrations**

**(A)** Calculating SFR of yeasts in media containing different NaCl concentrations (0-9%). The calculation was conducted based on the WL data presented in Figures 2A-2D.

**(B)** Comparing the SFR of yeasts in media containing different salt concentrations (NaCl (0-9%), SW, SSW & 2XSSW) . The calculation was conducted based on the WL data presented in Figures 2A-2G.



**SF3: Schematic diagram of industrial seawater-based ethanol production (100,000 L plants)**  
 The content of this diagram was firstly suggested by Zaky in 2017 <sup>1</sup>.



**SF4: Schematic diagram of the elements of Marine fermentation.**

**The concept of marine fermentation was initially introduced by Zaky et al in 2014 <sup>1,2</sup>.**

## References:

- 1 Zaky, A. S. Marine Fermentation, the Sustainable Approach for Bioethanol Production. *EC Microbiology*, 25-27 (2017).
- 2 Zaky, A. S., Tucker, G. A., Daw, Z. Y. & Du, C. Marine yeast isolation and industrial application. *FEMS Yeast Res* 14, 813-825, doi:10.1111/1567-1364.12158 (2014).