



Fig. S4. Taxonomical composition of bacterial community at the level of phylum in the laboratory, where *H. lacustris* BM1 was cultured **(A)**. The heatmap of the Morisita-Horn index values at the genus level reflecting similarity of the *16SrRNA* gene libraries obtained for the *H. lacustris*-bacterial association at different stages of the experiment, as well as with the dataset from the laboratory **(B)**. projection of the space of three components on the plain of 1st and 2nd components and on the plain of 2nd and 3th components. Samples from photobioreactor, LC-I, LC-II, LC-III (the laboratory *H. lacustris* cultures maintained after isolation), ‘environment sample’ as well as laboratory sample are presented **(C)**.

Table S4. Total list of bacterial genera observed in the laboratory, where *H. lacustris* BM1 (IPPAS H-2018) was cultured based on sequencing of *16SrRNA* gene fragment. The percentages of total bacterial reads in each are presented.

Phylum	Family	Genus	Reads percentage
Actinobacteria	<i>Corynebacteriaceae</i>	<i>Corynebacterium</i>	1.24
	<i>Micrococcaceae</i>	<i>Micrococcus</i>	3.49
		<i>Rothia</i>	1.08
	<i>Propionibacteriaceae</i>	<i>Propionibacterium</i>	28.52
	OTHERS		4.45
Sphingobacteriia	OTHERS		2.20
Bacilli	<i>Staphylococcaceae</i>	<i>Macrococcus</i>	3.48
		<i>Staphylococcus</i>	1.42
	<i>Streptococcaceae</i>	<i>Streptococcus</i>	1.38
Clostridia	<i>Ruminococcaceae</i>	<i>Ruminococcus</i>	0.31
		<i>Subdoligranulum</i>	0.47
		OTHERS	0.31
Proteobacteria	<i>Caulobacteraceae</i>	<i>Brevundimonas</i>	0.78
	<i>Bradyrhizobiaceae</i>	<i>Bosea</i>	0.28
		<i>Bradyrhizobium</i>	0.47
	<i>Phyllobacteriaceae</i>	<i>Mesorhizobium</i>	0.45
	<i>Rhizobiaceae</i>	<i>Ensifer</i>	2.53
	<i>Alcaligenaceae</i>	<i>Achromobacter</i>	0.04
	<i>Comamonadaceae</i>	OTHERS	2.28
	<i>Pasteurellaceae</i>	<i>Haemophilus</i>	1.30
	<i>Moraxellaceae</i>	<i>Acinetobacter</i>	3.62
		<i>Enhydrobacter</i>	1.19
		<i>Psychrobacter</i>	1.11
	<i>Pseudomonadaceae</i>	<i>Pseudomonas</i>	2.74
	<i>Vibrionaceae</i>	OTHERS	17.98
	<i>Xanthomonadaceae</i>	OTHERS	0.91
	OTHERS		6.12
OTHERS			9.85