

Supplementary information (SI) for Soil Systems

Table S1 Layout of Assays for MicroPlate (GEN III)

A1 Negative control	A2 Dextrin	A3 D-Maltose	A4 D-Trehalose	A5 D-Cellobiose	A6 Gentibiose	A7 Sucrose	A8 D-Turanose	A9 Staychose	A10 Positive control	A11 pH 6	A12 pH 5
B1 D-Raffinose	B2 α -D-Lactose	B3 D-Melibiose	B4 β -Methyl-D-Glucoside	B5 D-Salicin	B6 N-Acetyl-D-Glucosamine	B7 N-Acetyl- β -Mannosamine	B8 N-Acetyl-D-Galactosamine	B9 N-Acetyl-Neuraminic acid	B10 1% NaCl	B11 4% NaCl	B12 6% NaCl
C1 α-D-Glucose	C2 D-Mannose	C3 D-Fructose	C4 D-Galactose	C5 3-Methyl Glucose	C6 D-Fucose	C7 L-Fucose	C8 L-Rhamnose	C9 Inosine	C10 1% Sodium Lactate	C11 Fusidic Acid	C12 D-Serine
D1 D-Sorbitol	D2 D-Mannitol	D3 D-Arabitol	D4 Myo-inositol	D5 Glycerol	D6 D-Glucose-6-PO ₄	D7 D-Fructose-6-PO ₄	D8 D-Aspartic Acid	D9 D-Serine	D10 Troleandomycin	D11 Rifamycin SV	D12 Minocycline
E1 Gelatin	E2 Glycl-L-Proline	E3 L-Alanine	E4 L-Arginine	E5 L-Aspartic Acid	E6 L-Glutamic Acid	E7 L-Histidine	E8 L-Pyroglutamic Acid	E9 L-Serine	E10 Lincomycin	E11 Guanidine HCl	E12 Niaproof 4
F1 Pectin	F2 D-Galacturonic Acid	F3 L-Galactonic Acid Lactone	F4 D-Gluconic Acid	F5 D-Glucuronic Acid	F6 Glucuronamide	F7 Mucic Acid	F8 Quinic Acid	F9 D-Saccharic Acid	F10 Vancomycin	F11 Tetrazolium Violet	F12 Tetrazolium Blue
G1 p-Hydroxy-Phenylacetic Acid	G2 Methyl Pyruvate	G3 D-Lactic Acid Methyl Ester	G4 L-Lactic Acid	G5 Citric Acid	G6 α -Keto-Gglutaric Acid	G7 D-Malic Acid	G8 L-Malic Acid	G9 Bromo-Succinic Acid	G10 Nalidixic Acid	G11 Lithium Chloride	G12 Potassium Tellurite
H1 Tween 40	H2 γ -Amino-Butyric Acid	H3 α -Hydroxy-Butyric Acid	H4 β -Hydroxy-D,L-Butyric Acid	H5 α -Keto-Butyric Acid	H6 Acetoacetic Acid	H7 Propionic Acid	H8 Acetic Acid	H9 Formic Acid	H10 Aztreonam	H11 Sodium Butyrate	H12 Sodium Bromate

Table S2 Chemical components analyzed in the leachate samples

Chemical components	Methods
Grease and Oil	APHA 5520B
Chlorinated Hydrocarbons	EPA 8270
Organochlorine Pesticides	APHA 6630B
Organophosphorus Pesticides	AOAC 974. 22
Alkalinity	APHA 2320B
Phosphate	APHA 4500 P-B,C
Chloride	APHA 4500Cl ⁻
Nitrate Nitrogen	APHA 4500-NO ₂
Total Organic Carbon	APHA 5310B
Nitrite Nitrogen	APHA 4500-NO ₂
Volatile Fatty Acids	EPA 8270
Metals	APHA 3112B
Monocyclic Aromatic Hydrocarbons	EPA SW 8260B
Alcohols	EPA 8270

Table S3 Monocyclic Aromatic Hydrocarbon Components of Leachate Samples (mg/L)

Component	JSL	AHL	BBL	TBL	Standard Limits (EPA)
m+p-Xylene	<0.01	<0.01	<0.001	<0.001	0.001
o-Xylene	<0.01	<0.001	<0.001	<0.001	0.001
Benzene	0.01	0.22	0.6	0.4	0.005
Toluene	<0.01	1.2	2.1	1.5	1.00
Ethyl Benzene	<0.01	0.86	0.85	0.8	0.70

Table S4 Semi-volatile Organic Components of Leachate Samples (mg/L)

Component	JSL	AHL	BBL	TBL	Standard Limits (EPA)
Phenol	<0.01	<0.01	<0.01	<0.01	0.5
o-Cresol	<0.01	0.09	<0.01	<0.01	NA
Alpha Thujone	<0.01	<0.01	<0.01	<0.01	NA
n-Butyl-Benzenesulfamide	<0.01	<0.01	<0.01	<0.01	NA
Camphor	<0.01	<0.01	<0.01	<0.01	2
p-Cresol	<0.01	0.06	<0.01	<0.01	50
1,8-Cineole	<0.01	<0.01	<0.01	<0.01	NA

NA - not available

Table S5 Characterization of soil sample collected from Taman Beringin Landfill

Parameter	Units	Method	Taman Beringin landfill
Cr	mg/kg	USEPA 3050 B	46
Ni	mg/kg	USEPA 3050 B	21
Al	mg/kg	USEPA 3050 B	49600
As	mg/kg	USEPA 3050 B	103
Ca	mg/kg	USEPA 3050 B	1608
Fe	mg/kg	USEPA 3050 B	42900
Mn	mg/kg	USEPA 3050 B	281
Mg	mg/kg	USEPA 3050 B	127.2
Pb	mg/kg	USEPA 3050 B	18
Cd	mg/kg	USEPA 3050 B	<0.01
Hg	mg/kg	USEPA 3052	<0.02
Na	mg/kg	USEPA 3050 B	4.54
Cu	mg/kg	USEPA 3050 B	59
Zn	mg/kg	USEPA 3050 B	49
pH			7.57
Total N	%	ASTM E778-87	0.62
Total K	mg/kg	ASTM E926-94	396.9
Total P	mg/kg	ASTM D5198-92	568

n =3

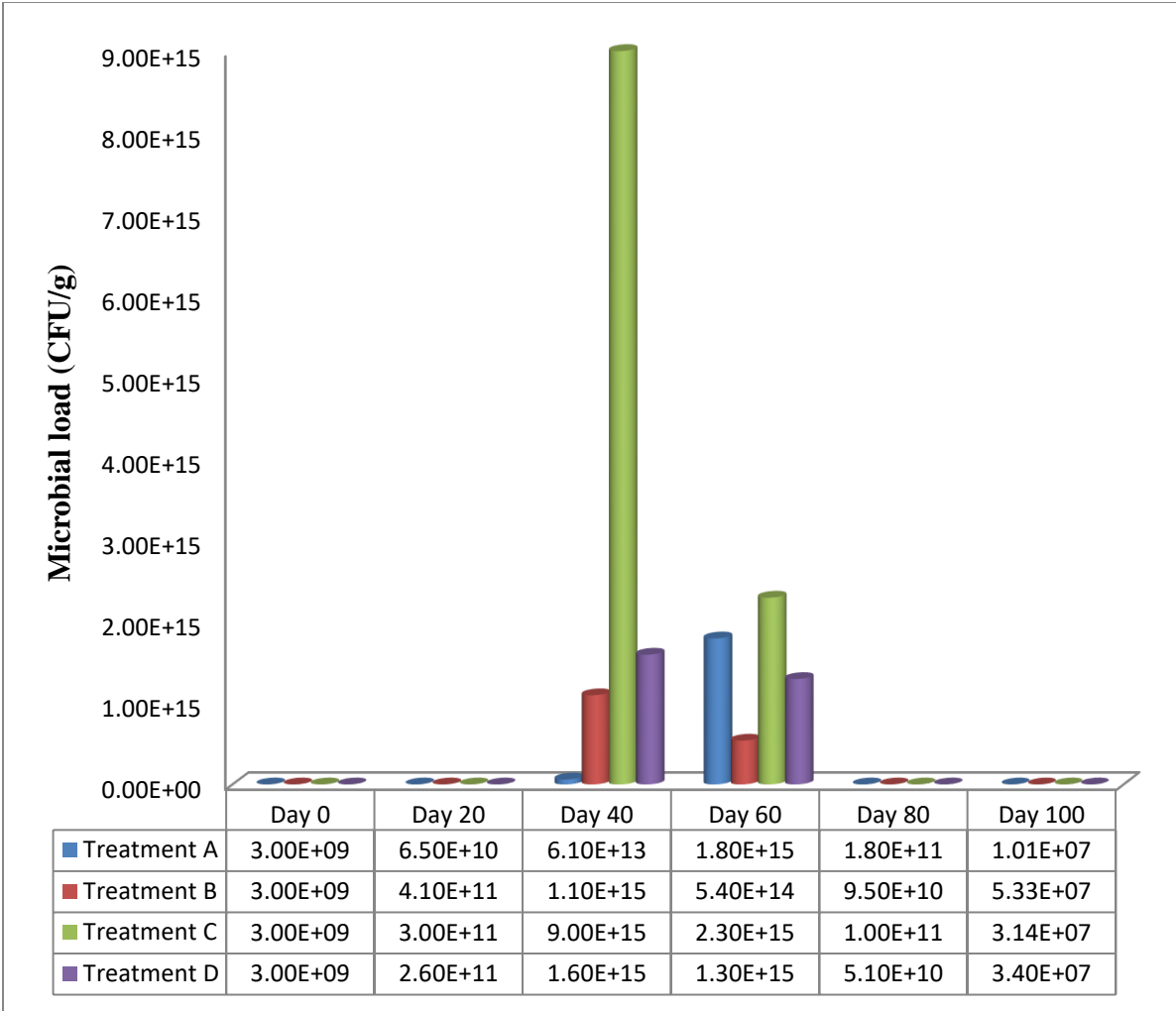


Figure S1 Bacterial counts during the 100 days of biomonitoring.