

Supplementary Material

Table S1. Composition of the different agro-wastes used in this study. Oat and emmer hull.

Sample for the analysis: 100 g of oat and emmer hull in 1000 mL of ultrapure water.						
	Method used in the analysis	Value read	Units	Reference or source	Value for dry matter	
Unit weight		210	g L ⁻¹		210.0	g L ⁻¹
pH		6.5				
Soluble phosphates	Phosphate test	250	mg L ⁻¹	Colorimetric method with test strips and reagent (Sigma-Aldrich)	0.0025	g g ⁻¹
Ammonia nitrogen	Ammonium test	30	mg L ⁻¹	Colorimetric method with test strips and reagent (Sigma-Aldrich)	0.0003	g g ⁻¹
Reducing sugars	o-DNS	1.27	g L ⁻¹	Miller, Gail Lorenz. "Use of dinitrosalicylic acid reagent for determination of reducing sugar." <i>Analytical chemistry</i> 31.3 (1959): 426-428. [1]	0.0127	g g ⁻¹
Glucose	Glucose test	100	mg L ⁻¹	Colorimetric method with test strips and reagent (Macherey-Nagel)	0.0010	g g ⁻¹
Other sugars, lignin and unknown organic carbon	By difference	31.8	g L ⁻¹		0.3180	g g ⁻¹
Proteins	Bradford	5.35	g L ⁻¹	Jeffrey M. Becker. "Bradford protein assay" (1996) [2]	0.0535	g g ⁻¹
Ashes	Residue on ignition	52.4	%		0.5240	g g ⁻¹
Water	Loss in weight	8.8	%		0.0880	g g ⁻¹
Total					1.00	g g ⁻¹

Table S2. Composition of the different agro-wastes used in this study. Corn chaff.

Sample for the analysis: 100 g of corn chaff in 1000 mL of ultrapure water.						
	Method used in the analysis	Value read	Units	Reference or source	Value for dry matter	
Unit weight		322	g L ⁻¹		322	g L ⁻¹
pH		5.9				
Soluble phosphates	Phosphate test	50	mg L ⁻¹	Colorimetric method with test strips and reagent (Sigma-Aldrich)	0.0005	g g ⁻¹
Ammonia nitrogen	Ammonium test	10	mg L ⁻¹	Colorimetric method with test strips and reagent (Sigma-Aldrich)	0.0001	g g ⁻¹
Reducing sugars	o-DNS	3.6	g L ⁻¹	Miller, Gail Lorenz. "Use of dinitrosalicylic acid reagent for determination of reducing sugar." <i>Analytical chemistry</i> 31.3 (1959): 426-428.[1]	0.0360	g g ⁻¹
Glucose	Glucose test	60	mg L ⁻¹	Colorimetric method with test strips and reagent (Macherey-Nagel)	0.0006	g g ⁻¹
Other sugars, lignin and unknown organic carbon	By difference	52.93	g L ⁻¹		0.5293	g g ⁻¹
Proteins	Bradford	0.05	g L ⁻¹	Jeffrey M. Becker. "Bradford protein assay" (1996)[2]	0.0005	g g ⁻¹

Ashes	Residue on ignition	35.7	%	0.3570	g g ⁻¹
Water	Loss in weight	7.6	%	0.0760	g g ⁻¹
Total				1.0000	g g ⁻¹

Table S3. Composition of the different agro-wastes used in this study. Proteic pea pod hull.

Sample for the analysis: 100 g of proteic pea pod hull in 1000 mL of ultrapure water.					
	Method used in the analysis	Value read	Units	Reference or source	Value for dry matter
Unit weight		432	g L ⁻¹		432 g L ⁻¹
pH		6.5			
Soluble phosphates	Phosphate test	3	mg L ⁻¹	Colorimetric method with test strips and reagent (Sigma-Aldrich)	0.00003 g g ⁻¹
Ammonia nitrogen	Ammonium test	50	mg L ⁻¹	Colorimetric method with test strips and reagent (Sigma-Aldrich)	0.00050 g g ⁻¹
Reducing sugars*					
Glucose*					
Other sugars, lignin and unknown organic carbon	By difference	20	g L ⁻¹		0.19947 g g ⁻¹
Proteins	Bradford	50	g L ⁻¹	Jeffrey M. Becker. "Bradford protein assay" (1996)[2]	0.3000 g g ⁻¹
Ashes	Residue on ignition	47.9	%		0.47900 g g ⁻¹
Water	Loss in weight	2.1	%		0.02100 g g ⁻¹
Total					1.00000 g g ⁻¹

* Not determined individually due to interference from the pea pod hull matrix

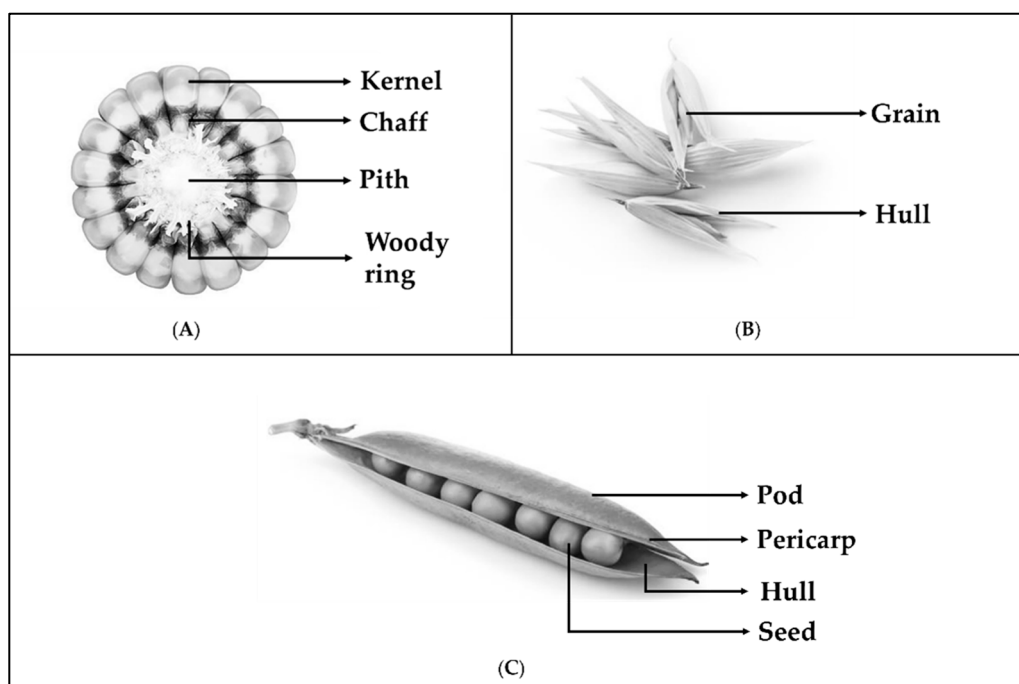


Figure S1. Representation and description of the crops used in this study and identification of the waste of interest in the formulation of fermentation media. Corn (**A**); oat and emmer (**B**); pea pod (**C**). (images from iStockphoto LP).



Figure S2. Cereal mill used in the preparation of the agro-waste and different stages of preparation of the agro-waste. Original emmer and oat chaff agro-waste **(A)**; agro-waste after milling **(B)**, sieving through 40 mesh **(C)**, sieved, ready to use material **(D)**.

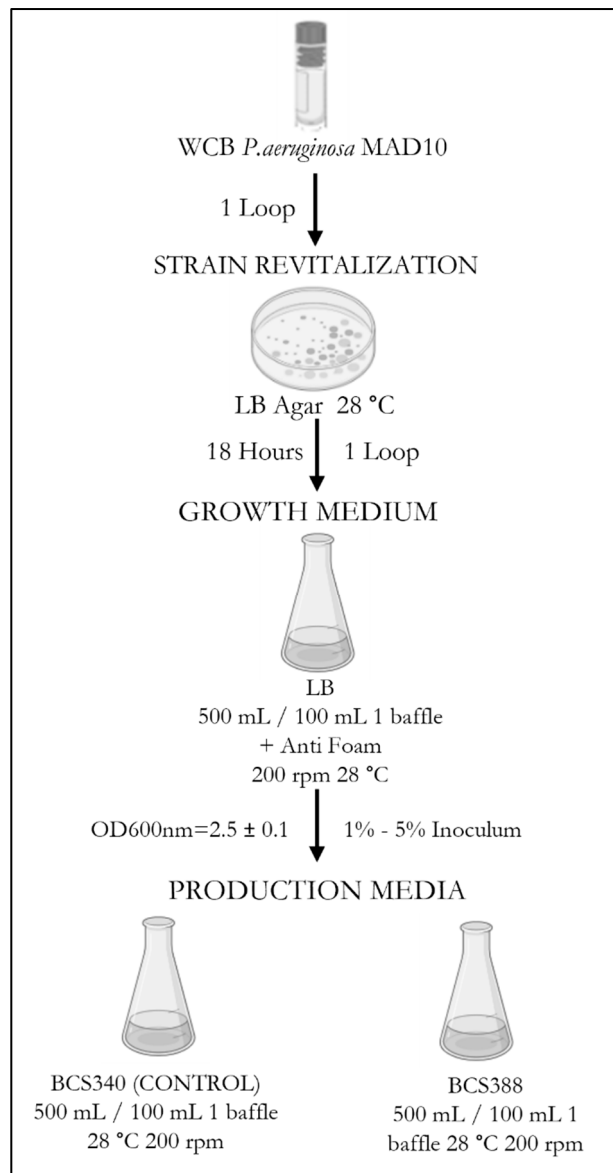


Figure S3. Fermentation Synoptic

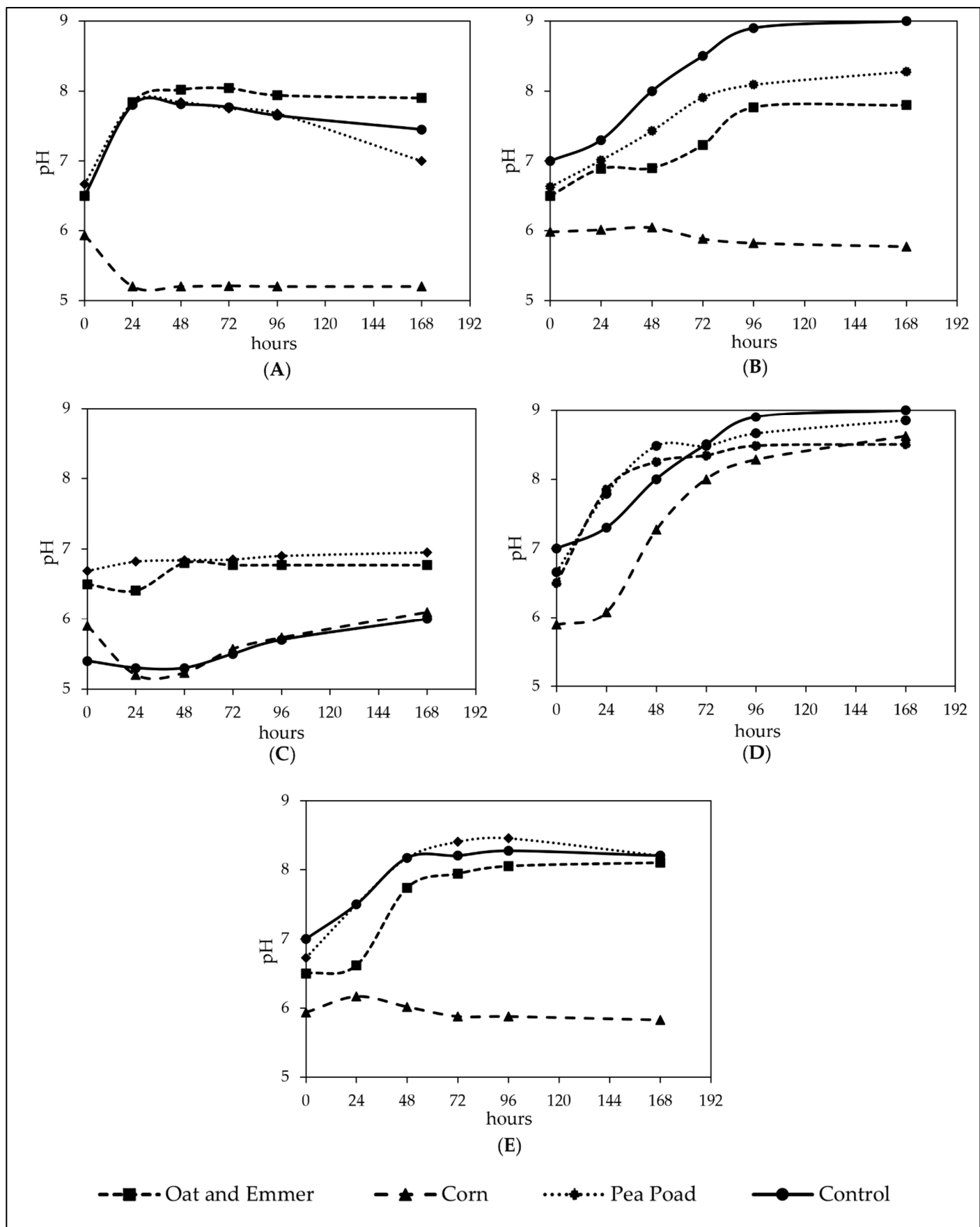


Figure S4. pH determination during fermentation on agro-waste based media. Results are the average of at least three independent experiments with a SD of no more than 5%. (A) *Acinetobacter* sp. MAD90, (B) *Bacillus subtilis* MAD3, (C) *Candida bombicola* NA, (D) *Pseudomonas aeruginosa* MAD10, (E) *Rhodococcus erythropolis* MADO2B

References

1. Miller, G.L. Use of Dinitrosalicylic Acid Reagent for Determination of Reducing Sugar. *Anal. Chem.* **1959**, 31, 426–428.
<https://doi.org/10.1021/ac60147a030>.
2. Becker, J.M.; Caldwell, G.A.; Zachgo, E.A. Protein Assays. *Biotechnology – A Laboratory Course* **1996**, 119–124.
<https://doi.org/10.1016/B978-012084562-0/50069-2>.