S1. Sample Preparation and Analysis of Total Phenolic Compounds

The sample extract was prepared by mixing 1 g of the material with 10 mL of distilled water for 30 min at room temperature. After centrifugation (4500× *g*, 15 min), obtained extracts were analyzed for total phenolic compounds (TPC) content. For the chromatographic analysis of phenolic acids, the sample after centrifugation was filtered throughout the syringe filters (0.45 μm, PTFE).

Total phenolics compounds (TPC) in water extracts of untreated and pre-treated RB were estimated by the Folin–Ciocalteu (FC) method [22]. The sample extract (1 mL) was mixed with 5 mL of the FC reagent (0.5 N) and 4 mL of 7.5% sodium carbonate, and a total volume (10 mL) was prepared with distilled water. The reaction mixture was incubated for 90 min in the dark, and the absorbance was measured at 765 nm. The TPC content was calculated and expressed as mg of gallic acid equivalents (GAE) in 100 g of the dry weight of the raw material. Each sample was analyzed in duplicate.

S2. UPLC-ESI -MS/MS Analysis of Phenolic Acids

Phenolic acids (PA) in the RB extracts were analyzed by ultra-performance liquid chromatography/electron spray ionisation tandem quadrupole mass spectrometry (UPLC/ESI-MS/MS). A Waters Acquity UPLC system (Waters, Milford, MA) combined with a Xevo triple quadruple mass spectrometer (Waters, Milford, MA). The Triart C18 column (1.9 μm, 100 mm × 2.0 mm i.d. (YMC, Dislanken, Germany) at a separation temperature 40 °C was used. The mobile phase consisting of solvent A (1% formic acid in ultrapure water) and solvent B (acetonitrile) was eluted in the following order: 95% A at 0.0 min; 5% B at 0 min; 5–30% B at 1–4 min; 30-50% B at 4–13 min. Finally, the initial conditions were re-introduced over 2 min and held for another 1 min. The following parameters were as follows: a capillary voltage of 2 kV; a flow rate of 0.5 mL/min; source temperature 150°C; desolvation temperature 400 °C and gas flow 700 L/h; cone gas flow 20 L/h; cone voltage and collision energy were optimised separately for each analyte. Quantitative analysis was performed by using external standards of investigated phenolic compounds. Calibration curves were constructed using six concentrations of standard solutions prepared in HPLC grade methanol. Detection and quantification limits for analyzed compounds were as follows: the LOQ (S/N = 10) and LOD (S/N = 3).

S3. Chemical Analysis

The raw material was tested for moisture, protein, fibre, fat, and ash contents according to the AACC Official Methods. The crude protein content was determined by the Kjeldahl nitrogen (method 46.10, nitrogen to protein conversion factor was 5.95 for rice flour). The fat content was determined by Soxhlet extraction method (method 30-25), ash and total dietary fibre were measured according to the methods 08.01 and 32.07, respectively. The concentrations of D-and L-lactic acids in fermented samples were measured using a Megazyme assay kit (K-DLATE, Megazyme Int., Wicklow, Ireland) according to the manufacturer's instructions.

Table S1. Indicatory microorganisms, cultivation temperatures and media

Fungal strain	**Type**	**O**ptimal t**emperature (°C)**	**Growth medium**
Alternaria alternata	fungi	25	SDA
Aspergillus terreus	fungi	35–40	SDA
Aspergillus versicolor	fungi	22–26	SDA
Cladosporium herbarum	fungi	18–28	SDA
Fusarium spp. (4 strains)	fungi	20–25	PDA
Mucor mucedo	fungi	25	PDA
Penicillium spp. (3 strains)	fungi	25	SDA
Pythium volutum	fungi	18–26	PDA

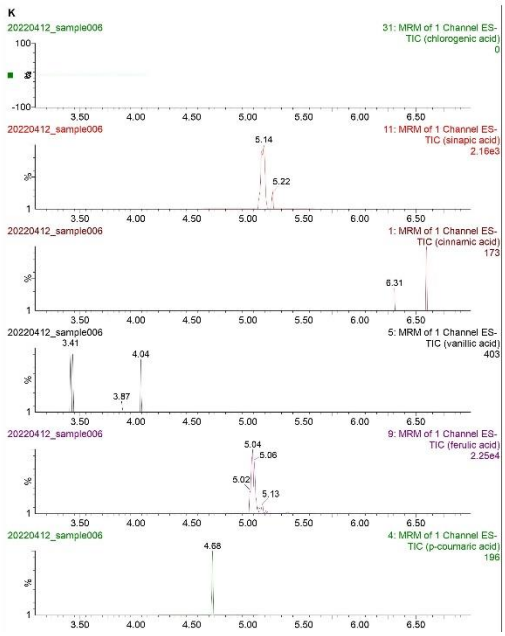
Rhizopus oryzae	fungi	28–30	MHA
Sclerotinia sclerotiorum	fungi	26–30	SDA
Verticillium wilt	fungi	21–30	MHA

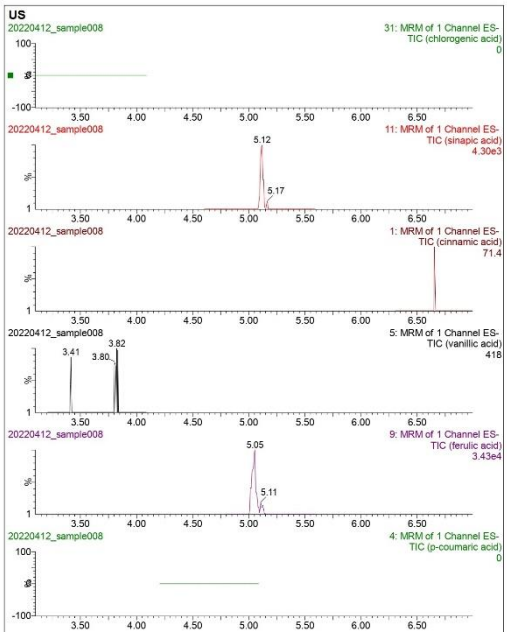
PDA, Potato Dextrose Agar; SDA, Sabouraud Dextrose Agar; MHA, Mueller Hinton Agar.

Table S2. The phenolic acids (μg/g d.w.) detected in rice bran (RB) extracts.

RB samples	*p*-Coumaric	Ferulic	Vanillic	Cinnamic	Sinapic	Total
UN	2.49^{c}	10.75^{d}	1.16^{e}	9.18^{c}	3.18^{d}	26.76^{e}
US	5.93^{b}	16.27^{e}	1.59^{c}	14.38^{b}	3.03^{d}	41.20^{a}
US+E	8.01^{a}	12.36^{c}	1.33^{d}	15.12^{a}	4.32^{c}	41.14^{a}
F_{Pa}	0.89^{d}	15.12^{a}	3.14^{b}	3.13^{d}	13.67^{a}	35.95^{b}
F_{Lb}	0.64^{e}	15.49^{a}	3.04^{b}	1.25^{e}	10.23^{b}	30.65^{c}
F_{Lu}	0.82^{d}	13.81^{b}	3.56^{a}	nd	10.26^{b}	28.45^{d}

Values are means of two determinations. Different superscript letters in the same column represent significant differences at $p < 0.05$. UN, untreated; US, ultrasonicated; US+E, ultrasonicated and enzyme-hydrolyzed; F_{Pa}, F_{Lb}, F_{Lu}, fermented with appropriate LAB strain.





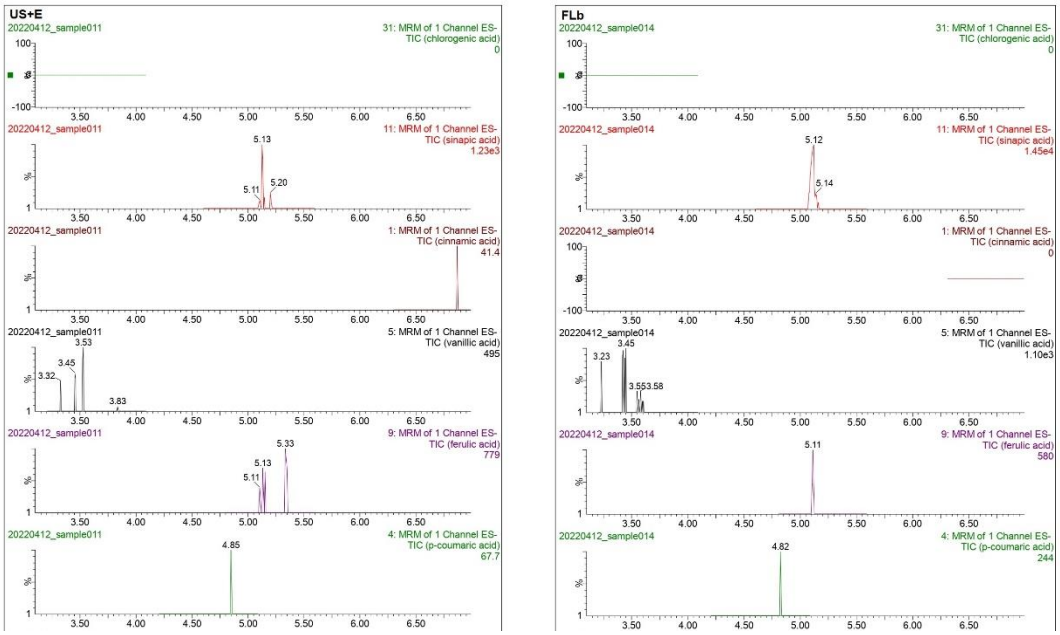


Figure S1. Sample chromatograms of UPLC-ESI-MS/MS analysis of phenolic compounds. K, untreated RB; US – ultrasonicated RB; US+E, ultrasonicated and enzyme hydrolysed; F_{Lb}, fermented RB. Retention times of standards: vanillic acid – 3.88 min; *p*-coumaric acid – 4.70 min; ferulic acid – 5.05 min; sinapic acid – 5.12 min; cinnamic acid – 6.78 min.

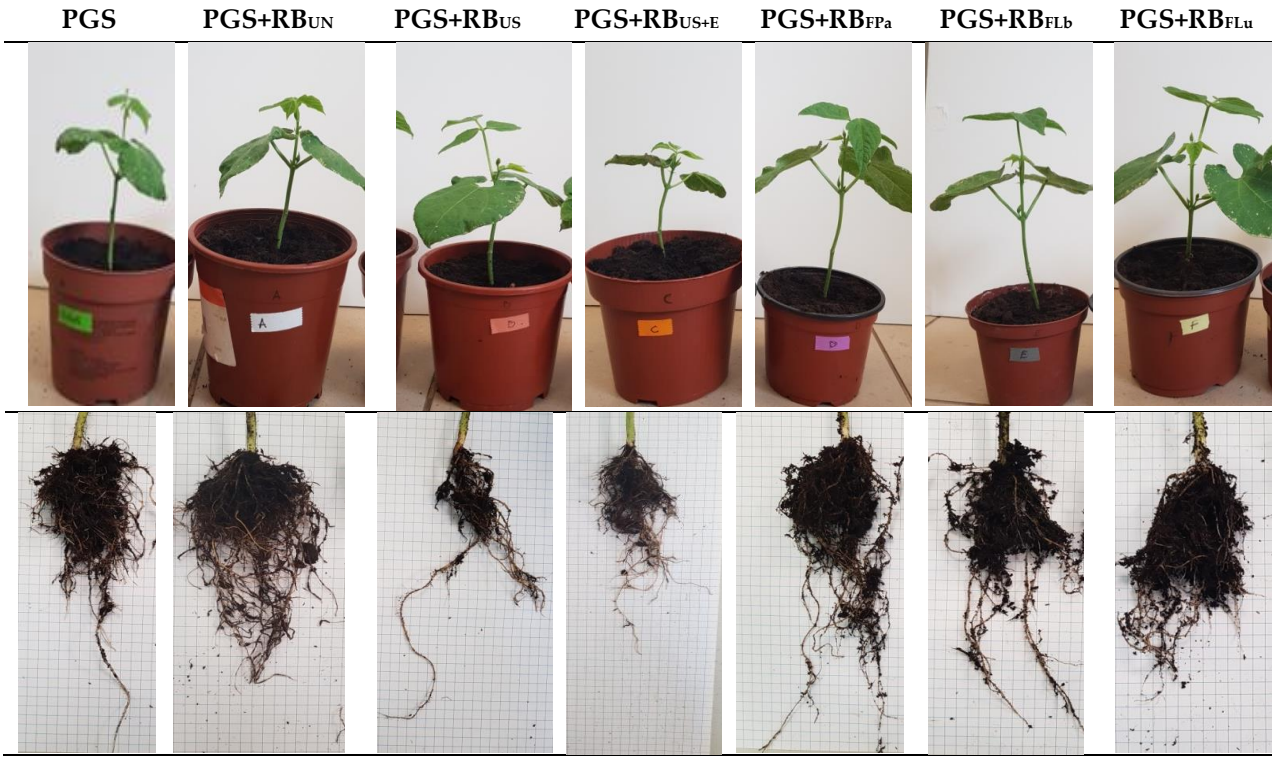


Figure S2. The bean plants and roots after 21 days of the growing in a TMS under greenhouse conditions.

Figure S3. The tomato plants after 28 days of the growing in a TMS under greenhouse conditions.