

Supplementary material

1. Supplementary Methods

1.1 Unpredictable Chronic Mild Stress

The chronic stress procedure was performed as previously described with minor modification (*Food & function*, 2019, 10(11): 7588-7598; *Neurobiology of stress*, 2020, 12: 100216). Briefly, the mice were subjected to a randomized schedule of 1~2 mild stressors per day; the stressors included forced swimming (10 min), restraint (3 h), water deprivation (24 h), isolation (24 h), food deprivation (24 h), wet bedding (24 h), no bedding (24 h), tilt cages (24 h), clip tail (3 min), crowded space (24 h), and continuous illumination (24 h). Each of the stressors was used no more than three times. The application of stress started at a different time every day to minimize its predictability (from 8:00 a.m. to 8:00 p.m.).

1.2 Behavioral tests

The open field test was performed as described previously (*Molecular Nutrition & Food Research*, 2021, 65(8): 2000704; *Food & function*, 2019, 10(11): 7588-7598). In brief, mice were habituated to the test room for half an hour before the test. The open field consisted of a square arena (50 cm×50 cm) enclosed by continuous opaque walls made of plexiglass. Mice were placed into the area for 8 min, locomotor activity was monitored using ETHOVISION software (Noldus, Wageningen, Netherlands). The time spent in the center zone was measured.

The elevated plus maze test was performed as described previously (*Molecular Nutrition & Food Research*, 2021, 65(8): 2000704; *Food & function*, 2019, 10(11): 7588-7598). Briefly, mice were placed in the center area of the maze facing the open arms and allowed to move freely for 5 min. Their behaviors were monitored using ETHOVISION software (Noldus, Wageningen, Netherlands). Entries and the time spent in the open and closed arms were recorded.

2. Supplementary results

Table S1 The pathogenetic strains used for antibacterial activity evaluation

Strain name	Number
<i>Escherichia coli</i> (ETEC O78: K80)	CICC10413
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	ATCC29213
<i>Listeria monocytogenes</i>	ATCC19114
<i>Salmonella typhimurium</i>	TA100

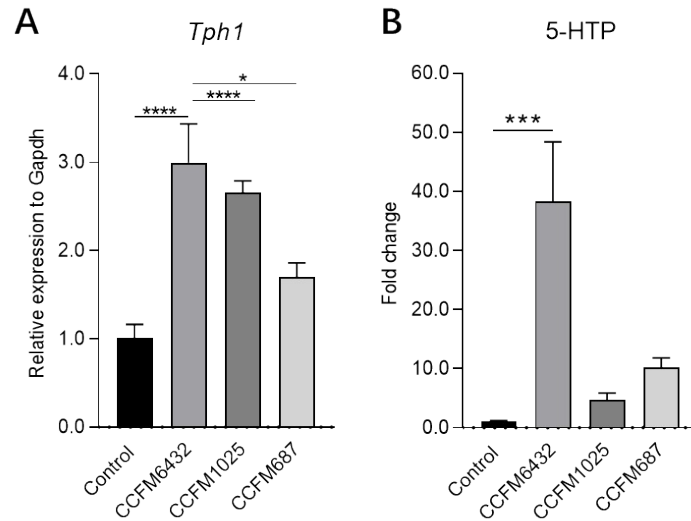


Fig. S1 (A) Expression of tryptophan hydroxylase 1 gene (*Tph1*) relative to β -Actin in RIN14B cells after CCFM6432 stimulation (B) 5-hydroxytryptophan (5-HTP) released from RIN14B cells after CCFM6432 stimulation. CCFM687 and CCFM1025 are previously reported with antidepressant-like effect via regulating the serotonin system. Here the CCFM6432 showed a better effect on increasing the gut derived 5-HTP, which indicated a potential mood regulating effect *in vivo*. RIN14B cells (ATCC CRL-2059) were used and the cell experiment were carried out as described previously by our group (*Food Funct.*, 2019, 10, 7588; *Journal of Nutritional Biochemistry*, 66 (2019) 43–51).

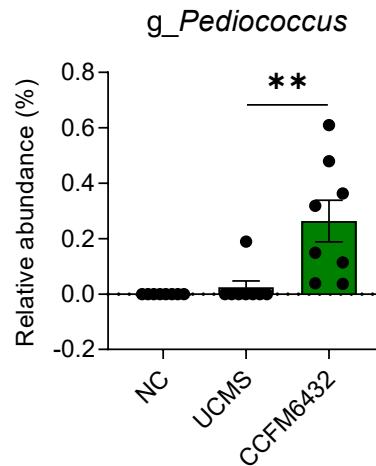


Fig. S2 Relative abundance of the *Pediococcus*. Data are mean \pm SEM; ** $P < 0.01$, using unpaired Student's t-test.