A probiotic *Bacillus amyloliquefaciens* D-1 strain is responsible for zearalenone detoxifying in coix semen

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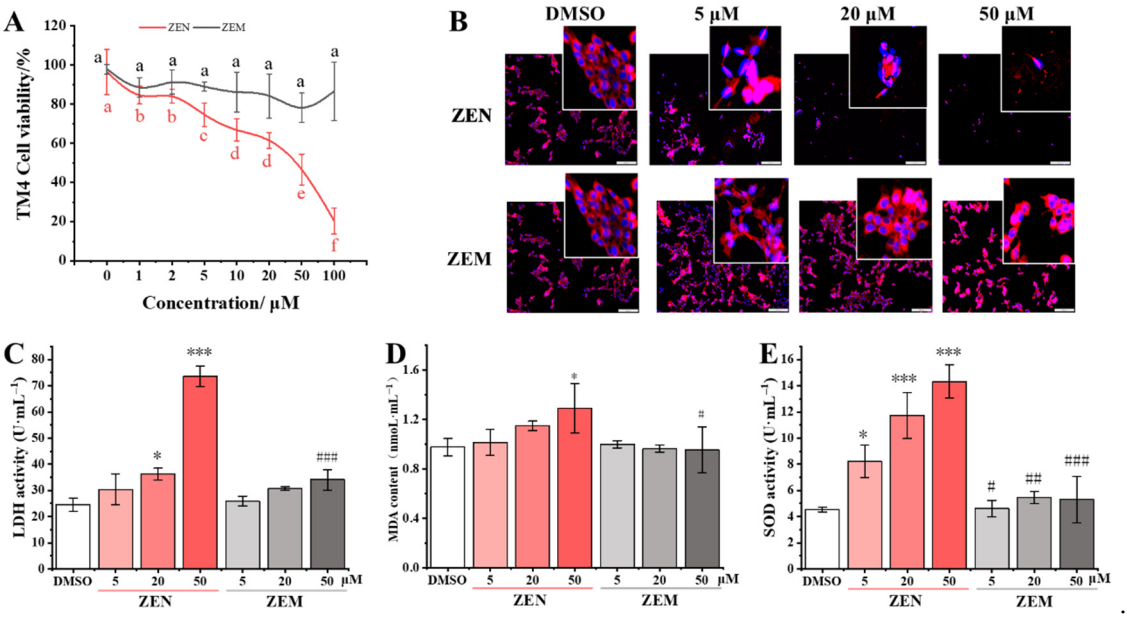

Figure S1. Effects of ZEN and its metabolite ZEM on TM4 cells. (**A**) Effects of ZEN and ZEM at different concentrations on the activity of TM4 cells. Letters a, b, c, d, e and f indicate that the ZEM group has a significant difference compared with the ZEN group at $p < 0.05$ levels with the same concentration (n = 6). (**B**) Immunofluorescence staining of TM4 cells. The cell membrane was stained red with Dil and the nucleus was stained blue with Hoechse 33342. (**C, D, and E**) Analysis of the release of LDH, the contents of MDA, and the activity of SOD in TM4 cells, respectively. *, **, and *** mean that the ZEN group and ZEM group have significant differences compared with the DMSO group at $P < 0.05$, $P < 0.01$, and $P < 0.005$ levels, respectively (n = 6). #, ##, and ### indicate that the ZEM group has a significant difference compared with the ZEN group at $P < 0.05$, $P < 0.01$, and $P < 0.005$ levels with the same concentration, respectively (n = 6). .

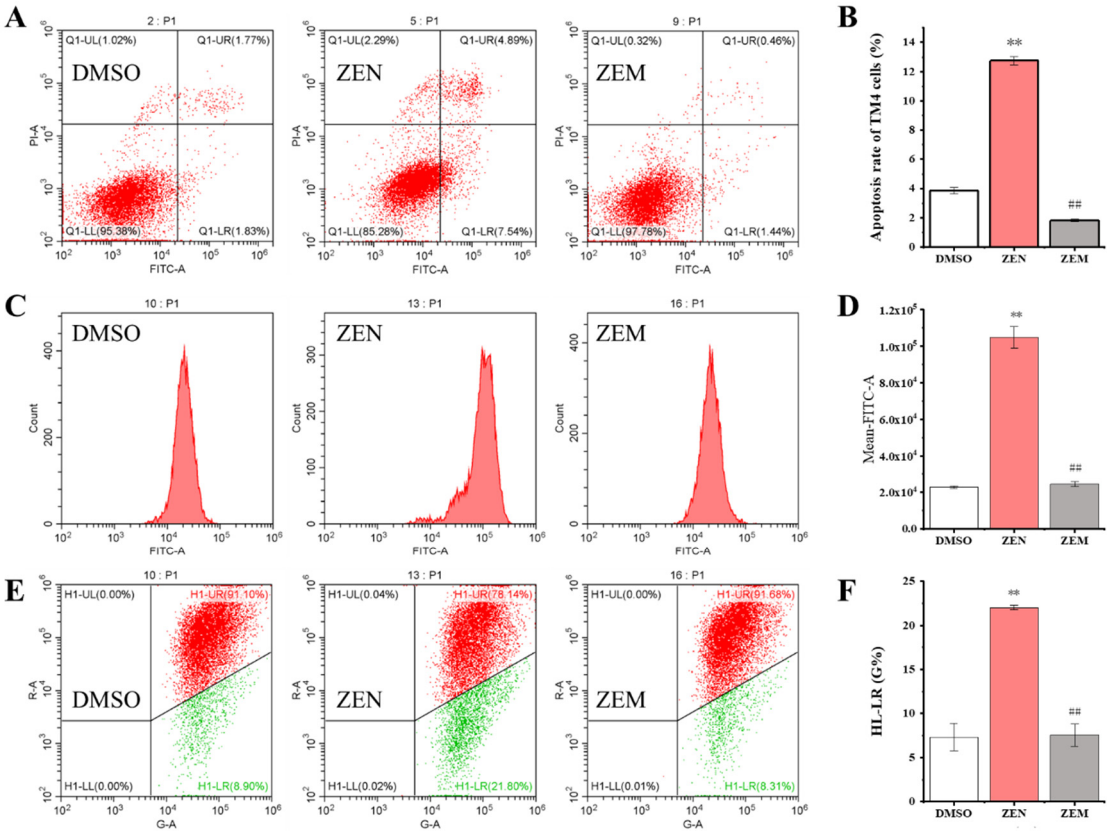

Figure S2. Effects of ZEN and its metabolite ZEM on the apoptosis (**A, B**), ROS (**C, D**), and mitochondrial membrane potential (**E, F**) of TM4 cells by flow cytometry. The Q1-UL region represents dead cells, the Q1-LR region represents early apoptotic cells, the Q1-LL region represents surviving cells, and the Q1-UR region represents late apoptotic cells. Normal mitochondria fluorescein red, and decreased or lost mitochondrial membrane potential fluorescein green. ** indicates that the ZEN group and ZEM group have significant differences compared with the DMSO group at $P < 0.01$ level (n = 6). ## indicates that the ZEM group has a significant difference compared with the ZEN group at $P < 0.01$ level (n = 6).

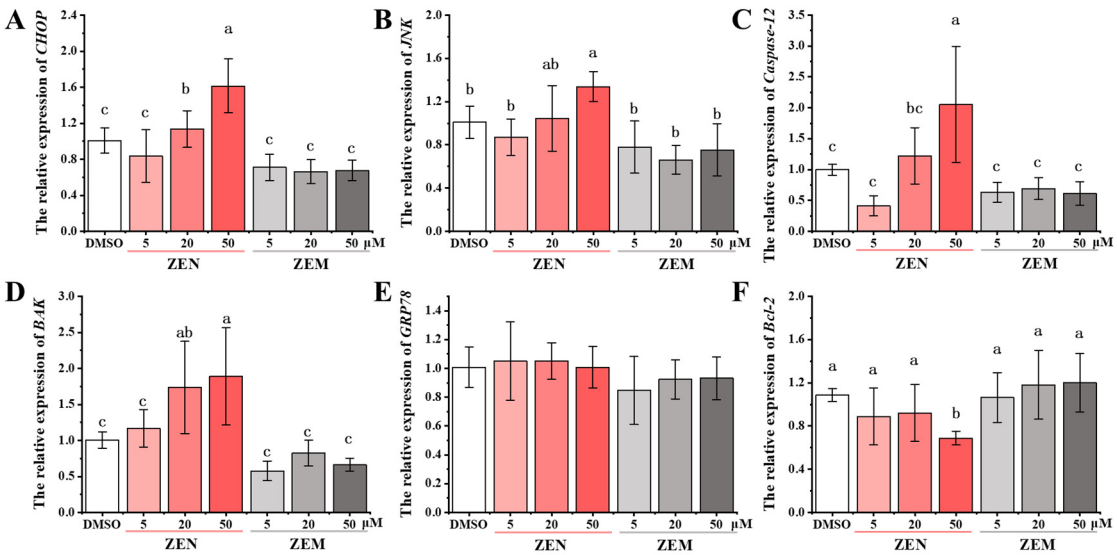

Figure S3. Effects of ZEN and its metabolite ZEM on the expression of apoptosis-related genes in TM4 cells by qRT-PCR. Different lowercase letters indicated significant differences among different treatment groups ($P < 0.05$) (n = 6).

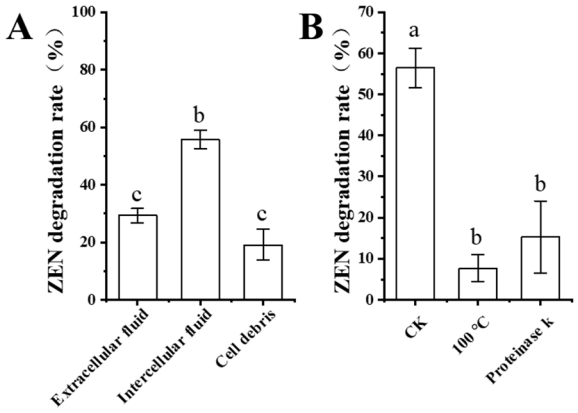

Figure S4. Degradation rate of ZEN by different components of D-1 strain. (**A**) The removal ability of ZEN in intracellular fluid, extracellular fluid, and cell debris of D-1 strain. (**B**) The ZEN degradation rate of intracellular fluid treated with protease K and boiling water bath. Different lowercase letters indicated significant differences among different treatment groups ($P < 0.05$) (n = 3).

Table S1. Primer's sequences of identification of strain D-1 and qRT-PCR.

Genes	Forward prime (5'-3')	Reward prime (5'-3')	Cell/ Strain
16S	CTACGGGMSGCAGCAG	GGACTACHVG GGTWTCTAAT	D-1
β-actin	CTGTCCCTGTATGCCTCTG	TTGATGTCACGCACGATT	
JNK	TCCTCCAAATCCATTACCTCC	CTCCAGCACCCATACATCAAC	
CHOP	TTCTCCTTCATGCGTTGCTTC	AAAACCTTCACTACTCTTGACCCTG	HepG2
Caspase-12	CTCAATAGTGGGCATCTGGGT	GAAGGTAGGCAAGACTGGTTC	
Bax	GCAAAGTAGAAGAGGGCAACC	ACTGGACAGCAATATGGAGCT	
Bcl-2	CTCAGGCTGGAAGGAGAAGAT	AAGCTGTCACAGAGGGGCTAC	
GAPDH	GAAGGTGAAGGTCGGAGTC	GAAGATGGTGATGGGATTTC	
P53	AATGCTCAGGGCAAGGAA	CAGGCAGAAGACTAACCAAG	
c-JNK	TCCTCCAAATCCATTACCTCC	CTCCAGCACCCATACATCAAC	
Caspase-8	GGATGGCCACTGTGAATAACTG	TCGAGGACATCGCTCTCTCA	TM4
Bax	CCCGAGAGGTCTTTTTCCGAG	CCAGCCCATGATGGTTCTGAT	
Bcl-2	GAGCCATCTCAGTGTGTGGAG	TGGGCAAACAGGTCAGCAG	
Fas	CTTTTCGTGAGCTCGTCTCTGA	CTCCCCAGAAGCGTCTTTGA	