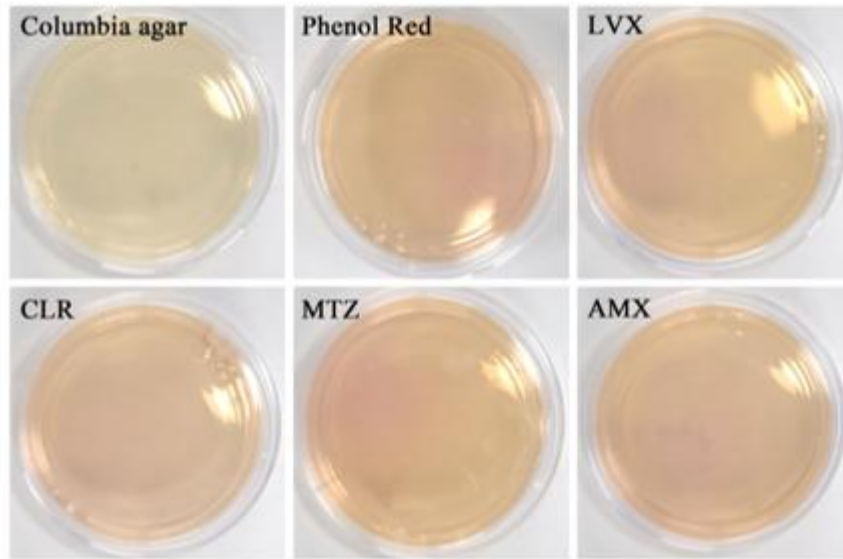
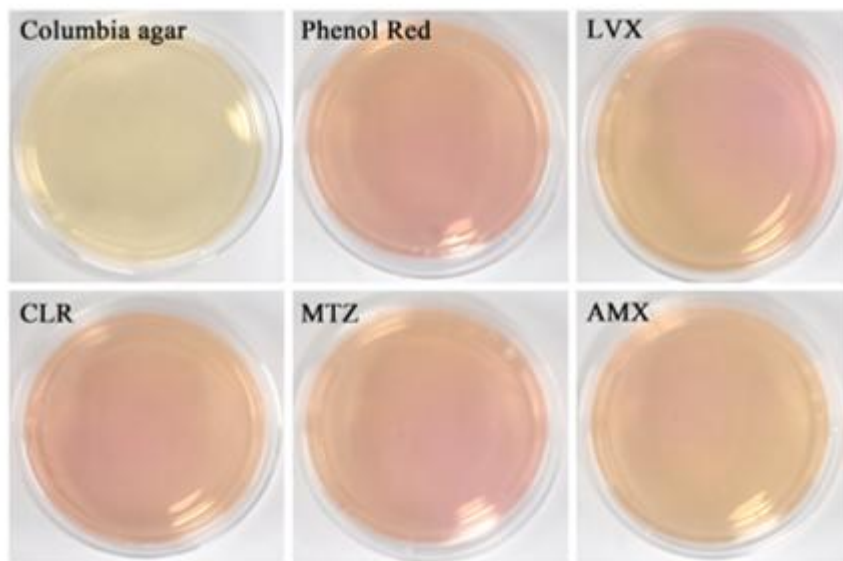


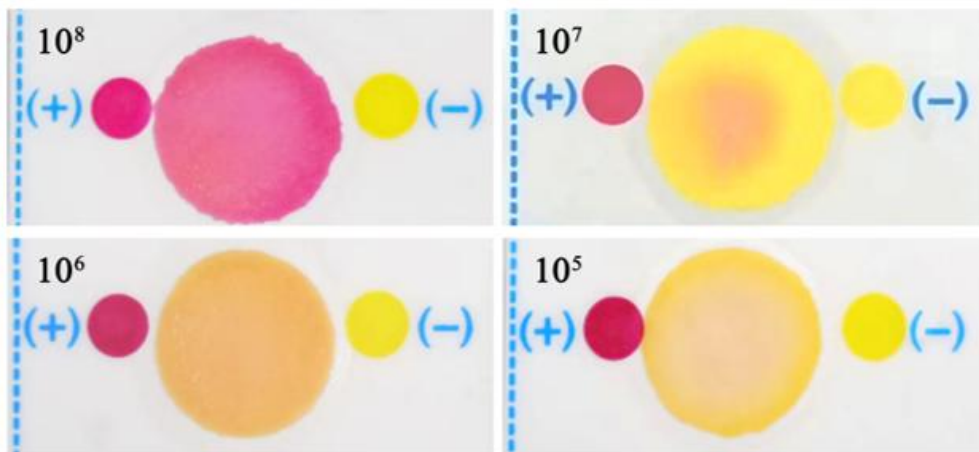
Supplementary Figure 1 Growth and discoloration of the standard susceptible strain 26695 after 36 hours of culture in the characteristic medium.



Supplementary Figure 2 The growth and discoloration of the drug-resistant strain 290 were observed after 36 hours of culture in the characteristic medium.



Supplementary Figure 3 The growth and discoloration of the drug-resistant strain 290 were observed after 36 hours of culture in the characteristic medium.



Supplementary Figure 4 Detection of colorimetric reactions induced by varying concentrations of *H. pylori* using rapid urease test strips. 10 μ L of *H. pylori* suspension was added to the test strip, the color development corresponded to the following concentrations: Deep red: 1×10^8 CFU/mL, Light red: 1×10^7 CFU/mL, Pale red: 1×10^6 CFU/mL, Very pale red: 1×10^5 CFU/mL.

Supplementary Table1 Effect of NiCl₂ on MICs of *H.pylori* (µg/mL)

<i>H.pylori</i>	BHI+NiCl ₂				BHI			
	LVX	CLR	MTZ	AMX	LVX	CLR	MTZ	AMX
G27	0.125	0.062 5	0.5	0.0313	0.125	0.062 5	0.5	0.031 3
26695	0.125	0.125	0.5	0.0625	0.125	0.125	0.5	0.062 5
159	2	0.125	4	0.125	2	0.125	4	0.125
161	2	2	4	0.125	2	2	4	0.125
162	8	8	2	0.125	8	8	2	0.125
163	16	0.5	16	1	16	0.5	16	1
286	1	8	32	1	1	8	32	1
287	4	4	32	0.25	4	4	32	0.25
289	8	32	32	1	8	32	32	1
290	32	16	32	4	32	16	32	4

100 mmol/L NiCl₂ was added to BHI, and MIC assays were performed over 3–5 days. The results showed that the addition of NiCl₂ did not affect the MIC values.

Supplementary Table2 Orthogonal experiment to explore special culture composition

No.	Variables				Orthogonal Array	Factors				Results
	A	B	C	D		pH	NiCl ₂	Phenol	Urea	
	Levels						(mmol/L	Red (mg/	(mg/m	
	1	2	3)	100mL)	L)	
1	1	1	1	1	A1B1C1D1	7.15	1	0.2	0.6	Pale yellow
2	1	2	2	2	A1B2C2D2	7.15	10	0.4	0.8	Pale yellow
3	1	3	3	3	A1B3C3D3	7.15	100	0.8	1.0	Pale red
4	2	1	2	3	A2B1C2D3	7.25	1	0.4	1.0	Slightly reddish
5	2	2	3	1	A2B2C3D1	7.25	10	0.8	0.6	Slightly reddish
6	2	3	1	2	A2B3C1D2	7.25	100	0.2	0.8	Pale yellow
7	3	1	3	2	A3B1C3D2	7.35	1	0.8	0.8	Slightly reddish
8	3	2	1	3	A3B2C1D3	7.35	10	0.2	1.0	Pale yellow
9	3	3	2	1	A3B3C2D1	7.35	100	0.4	0.6	Noticeable reddish color

According to the orthogonal test table L9(3⁴), the experiment included four factors—A, B, C, and D—corresponding to pH, NiCl₂, Phenol Red, and Urea, respectively. The three levels for each factor were as follows: pH (7.15, 7.25, 7.35), NiCl₂ (1, 10, 100 mmol/L), Phenol Red (0.2, 0.4, 0.8 mg/100mL), and Urea (0.6, 0.8, 1.0 mg/mL). After the characteristic medium was configured according to the experimental protocol for the nine orthogonal groups, *H. pylori* (1×10⁵ CFUs) was added dropwise. By 28–36 hours of incubation, the

medium developed a noticeable reddish color, indicating the ideal condition.