

Table S1. Antibacterial activity (zone of inhibition in mm) of oregano honey samples against *H. pylori* strains isolated from clinical samples (ulcers = 6, gastritis = 8) and a reference strain (*H. pylori* DSM21031).

Strain	Concentration of Honey (% v/v)				
	75	50	25	12.5	6
HpU1	27.26 ± 6.4 ^{ab}	22.28 ± 6.3 ^{abc}	15.2 ± 6.9 ^{ab}	6.56 ± 3.4 ^a	3.16 ± 1.7 ^a
HpU2	21.45 ± 5.1 ^{ab}	18.63 ± 4.14 ^{ab}	13.8 ± 3.9 ^a	7.7 ± 3.1 ^a	2.41 ± 1.28 ^a
HpU3	15.38 ± 3.3 ^a	14.36 ± 3.9 ^a	12.18 ± 2.9 ^a	9.18 ± 2.2 ^{ab}	5.14 ± 2.1 ^{ab}
HpU4	22.48 ± 4.81 ^{ab}	18.16 ± 3.56 ^{ab}	13.3 ± 3.45 ^a	9.19 ± 3.39 ^{ab}	3.18 ± 1.2 ^a
HpU5	29.1 ± 5.1 ^{ab}	21.45 ± 3.1 ^{abc}	18.13 ± 4.3 ^{abc}	5.48 ± 4.1 ^a	3.5 ± 1.8 ^a
HpU6	28.78 ± 4.18 ^{ab}	27.15 ± 4.0 ^{bcd}	21.45 ± 3.6 ^{abc}	18.13 ± 1.3 ^{cd}	12.14 ± 2.4 ^{bc}
HpG1	47.7 ± 4.5 ^{cd}	43.5 ± 4.7 ^h	36.26 ± 3.7 ^d	30.44 ± 1.6 ^e	20.1 ± 2.9 ^d
HpG2	50.28 ± 4.2 ^d	45.88 ± 4.0 ^h	26.66 ± 4.6 ^{bcd}	15.7 ± 3.9 ^{abc}	5.48 ± 5.4 ^{ab}
HpG3	53.44 ± 3.8 ^d	32.13 ± 3.9 ^{cdeg}	14.44 ± 2.14 ^a	9.90 ± 1.6 ^{ab}	3.78 ± 2 ^a
HpG4	35.16 ± 4.13 ^{abc}	28.76 ± 3.28 ^{bcd}	18.90 ± 4.2 ^{ac}	13.12 ± 2.45 ^{abc}	4.13 ± 1.1 ^a
HpG5	44.6 ± 5.51 ^{cd}	42.42 ± 4.5 ^{egh}	34.66 ± 3.9 ^{bd}	27.24 ± 4.4 ^{de}	18.00 ± 4.0 ^{acd}
HpG6	48.84 ± 5.3 ^{cd}	33.18 ± 3.64 ^{cdeg}	29.88 ± 4.18 ^{cd}	22.14 ± 4.4 ^{ce}	15.70 ± 3.15 ^{cd}
HpG7	51.51 ± 5.8 ^{cd}	40.28 ± 4.6 ^{egh}	27.80 ± 4.3 ^{cd}	12.90 ± 3.45 ^{abcd}	4.15 ± 2.1 ^a
HpG8	47.62 ± 3.9 ^{ad}	35.66 ± 4.9 ^{degh}	29.22 ± 4.3 ^{cd}	15.78 ± 3.5 ^{abc}	4.6 ± 1.8 ^{ab}
Ref	51.24 ± 2.4 ^d	30.24 ± 1.5 ^{bcd}	15.4 ± 1.1 ^{ab}	10.8 ± 1.3 ^{abc}	1.34 ± 1.1 ^a

HpU1 to HpU6 are *H. pylori* strains isolated from ulcers, while HpG1 to HpG8 are *H. pylori* strains isolated from gastritis. Ref: *H. pylori* DSM21031 (reference strain). Similar superscript letters indicate no statistically significant differences (ANOVA with Tukey's HSD *post hoc* multiple range tests) among the various *H. pylori* strains for the same concentration of honey.

Table S2. Antibiotic susceptibility results from six antibiotics against *H. pylori* strains isolated from clinical samples (ulcers = 6, gastritis = 8) and a reference strain (*H. pylori* DSM21031).

Antibiotic	HpU1	HpU2	HpU3	HpU4	HpU5	HpU6	HpG1	HpG2	HpG3	HpG4	HpG5	HpG6	HpG7	HpG8	HpRef	Clinical Breakpoints (mg/L)*	
	1	2	3	4	5	6										Susceptible	Resistant
Amoxicillin	R**	R	S	R	R	R	S	S	S	S	R	S	R	S	S	≤0.12	>0.12
Clarithromycin	R	S	R	S	R	R	R	S	S	S	S	S	S	S	S	≤0.25	>0.5
Metronidazole	S	R	R	S	S	R	S	S	R	R	S	S	R	R	S	≤8	>8
Tetracycline	R	S	S	R	R	S	S	S	S	R	R	R	R	S	S	≤1	>1
Levofloxacin	R	R	R	S	R	S	S	R	R	S	R	S	S	S	S	≤1	>1
Rifampicin***	R	S	R	R	S	R	S	S	R	S	R	S	S	S	S	≤1	>1

*Proposed by EUCAST (European Committee on Antimicrobial Susceptibility Testing) and the British Society for Antimicrobial Chemotherapy; **R:Resistant, S: Sensitive; ***Rifampicin was used to screen for rifabutin resistance since rifampicin E-tests are not available routinely (adapted from EUCAST).

Table S3. Diameter of the inhibition zones (mm, mean ± St. Dev. produced from various solvent extracts (75% v/v) against 14 *H. pylori* strains isolated from ulcers (*n*=6) or gastritis (*n*=8) and a reference strain *H. pylori* DSM21031.

Honey Extract (75% v/v)	HpU1*	HpU2	HpU3	HpU4	HpU5	HpU6	HpG1	HpG2	HpG3	HpG4	HpG5	HpG6	HpG7	HpG8	HpG8	HpG8	<i>H. pylori</i> DSM21031
<i>n</i> -Hexane	14.35 ± 3,5 ^a	12,85 ± 6,4 ^a	14,89 ± 5,3 ^a	16,41 ± 3,8 ^a	15,74 ± 3,8 ^a	16,81 ± 3,25 ^a	17,38 ± 3,8 ^{ab}	18,71 ± 4,5 ^{ab}	17,99 ± 3,7 ^{ab}	16,9 ± 3,5 ^{ab}	18,45 ± 4,3 ^{ab}	17,85 ± 3,6 ^{ab}	18,4 ± 3,8 ^{ab}	19,7 ± 4,2 ^{ab}	18,13 ± 3,9 ^{ab}		
Diethyl ether	22,1 ± 5,7 ^a	19,5 ± 3,7 ^a	19,8 ± 4,7 ^a	19,88 ± 5,3 ^a	19,8 ± 2,9 ^a	19,87 ± 3,7 ^{ab}	23,7 ± 5,4 ^{ab}	25,1 ± 4,7 ^b	22,35 ± 4,7 ^{a,b}	25,8 ± 4,7 ^{bc}	26,4 ± 3,1 ^b	22,7 ± 2,8 ^{ab}	22,78 ± 3,8 ^b	22,74 ± 2,7 ^b	23,12 ± 3,8 ^b		
Chloroform	14,7 ± 5,7 ^a	15,4 ± 2,8 ^a	14,18 ± 2,9 ^a	15,1 ± 3,9 ^a	15,78 ± 5,2 ^a	14,5 ± 2,8 ^a	12,1 ± 2,1 ^a	13,24 ± 3,4 ^a	12,7 ± 3,8 ^a	13,5 ± 3,8 ^a	12,8 ± 2,8 ^b	13,7 ± 3,8 ^a	12,75 ± 2,8 ^a	13,7 ± 2,8 ^a	13,9 ± 2,8 ^a		
Ethyl acetate	25,42 ± 4,7 ^a	23,78 ± 4,7 ^a	24,58 ± 3,5 ^a	23,85 ± 4,8 ^a	25,45 ± 3,8 ^a	25,05 ± 2,7 ^b	24,78 ± 6,1 ^b	27,35 ± 2,1 ^b	25,78 ± 2,5 ^b	27,8 ± 1,8 ^c	25,78 ± 3,2 ^b	26,58 ± 3,5 ^b	26,85 ± 2,4 ^b	26,65 ± 2,5 ^b	26,35 ± 2,4 ^b		

*Strains *HpU1–HpU6* isolated from ulcers and *HpG1–HpG8* from gastritis. Different superscript letters in columns indicate statistically significant differences (ANOVA with Tukey's HSD *post hoc* comparison, $p < 0.05$) in the diameter of the inhibition zone between the solvent extracts within each *H. pylori* strain.

Table S4. MIC₉₅ of solvent extracts (% v/v) of each honey against *H. pylori* strains isolated from ulcers and the reference strain DSM21031.

Solvent	N*	<i>HpU1</i>	N*	<i>HpU2</i>	N*	<i>HpU3</i>	N*	<i>HpU4</i>	N*	<i>HpU5</i>	N*	<i>HpU6</i>	N*	<i>Hp</i> DSM21031
<i>n</i> -hexane	32	10.23 ± 2.25 ^{4,c}	27	6.42 ± 4.16 ^{3,b}	7	7.78 ± 3.55 ^{3,bc}	11	5.97 ± 3.29 ^{3,ab}	6	5.83 ± 3.41 ^{2,3,ab}	9	6.38 ± 2.82 ^{3,ab}	21	4.28 ± 2.45 ^{3,a}
Diethyl ether	36	3.11 ± 2.84 ^{1,d}	39	0.93 ± 0.96 ^{1,ab}	41	2.13 ± 2.26 ^{1,c}	29	0.96 ± 0.65 ^{1,ab}	37	1.51 ± 1.58 ^{1,bc}	46	1.02 ± 0.64 ^{1,ab}	48	0.52 ± 0.76 ^{1,a}
Chloroform	25	7.3 ± 2.78 ^{3,b}	22	4.26 ± 2.36 ^{2,a}	5	5.0 ± 1.76 ^{2,3,ab}	12	6.83 ± 3.48 ^{3,b}	13	6.21 ± 3.68 ^{3,ab}	17	6.45 ± 4.07 ^{3,b}	20	9.85 ± 2.27 ^{4,c}
Ethyl acetate	28	4.82 ± 2.03 ^{2,ab}	38	2.96 ± 2.51 ²	34	3.46 ± 3.44 ^{2,abc}	33	3.35 ± 3.27 ^{2,ab}	32	3.99 ± 3.24 ^{2,bc}	50	2.70 ± 2.80 ^{2,a}	36	2.29 ± 1.25 ^{2,a}

* Number of samples with inhibitory effect out of 50 oregano honey tested samples. Different superscript numbers indicate statistically significant differences in rows while superscript numbers indicate statistically significant differences in columns (ANOVA with Tukey's HSD *post hoc* comparisons at 95%).

Table S5. Urease Inhibitory effect of pure and diethyl ether extracts of oregano honey against two *H. pylori* strains isolated from ulcers (*HpU1*, *HpU2*) and the reference strain DSM21031.

<i>H. pylori</i> Strain	Oregano Honey	N*	Effective Concentration (mg/mL)		
			Mean ± SD	Range	Median
<i>HpU1</i>	Pure	43	91.3 ± 55.8**	12.5–200.0	100.0
	Diethyl ether extract	50	22.0 ± 18.8	3.0–100.0	12.5
<i>HpU2</i>	Pure	49	57.5 ± 40.5**	6.25–200.0	50.0
	Diethyl ether extract	50	5.93 ± 3.32	1.56–12.5	6.25
DSM21031	Pure	49	28.3 ± 18.3**	12.5–100.0	25.0
	Diethyl ether extract	50	4.43 ± 2.33	1.56–12.5	3.125

* Number of samples with inhibitory effect out of 50 oregano honey tested samples. **Statistically significant differences between pure and diethyl ether extract effective concentration according to the Mann–Whitney (Wilcoxon) W-test ($p < 0.01$).

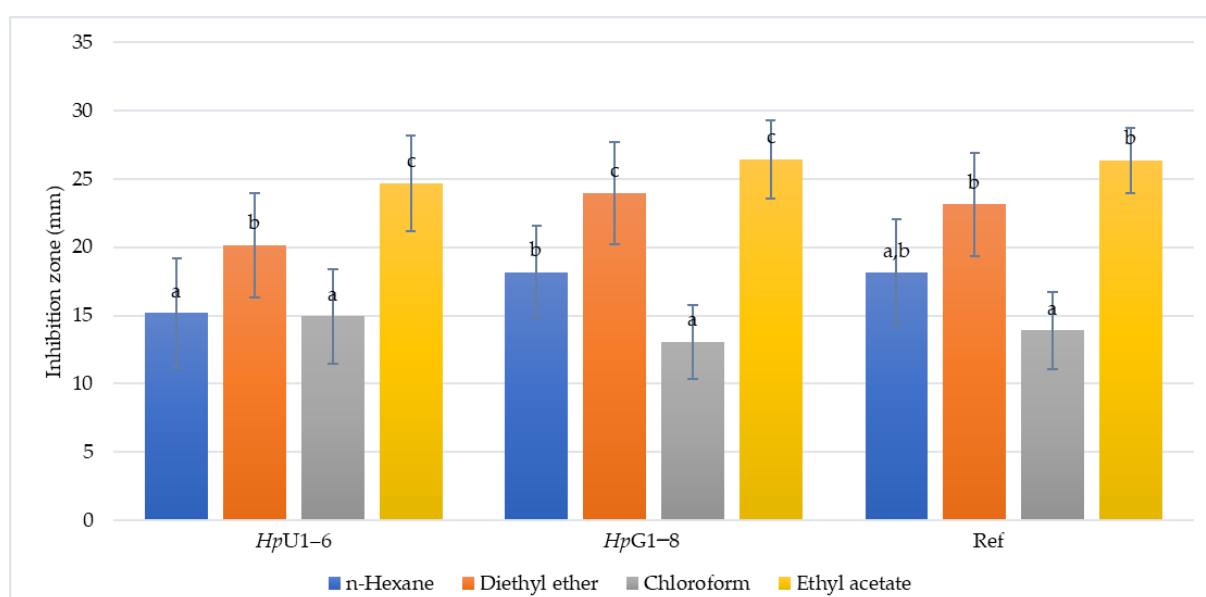


Figure S1. Mean diameter of inhibition zones from various solvent extracts against ulcer (*HpU1–6*, $n=6$), gastritis (*HpG1–8*, $n=8$), and the reference strain of *H. pylori* DSM21031. Different letters above bars indicate statistically significant differences (ANOVA with Tukey's HSD, $p < 0.05$) for each group of strains.

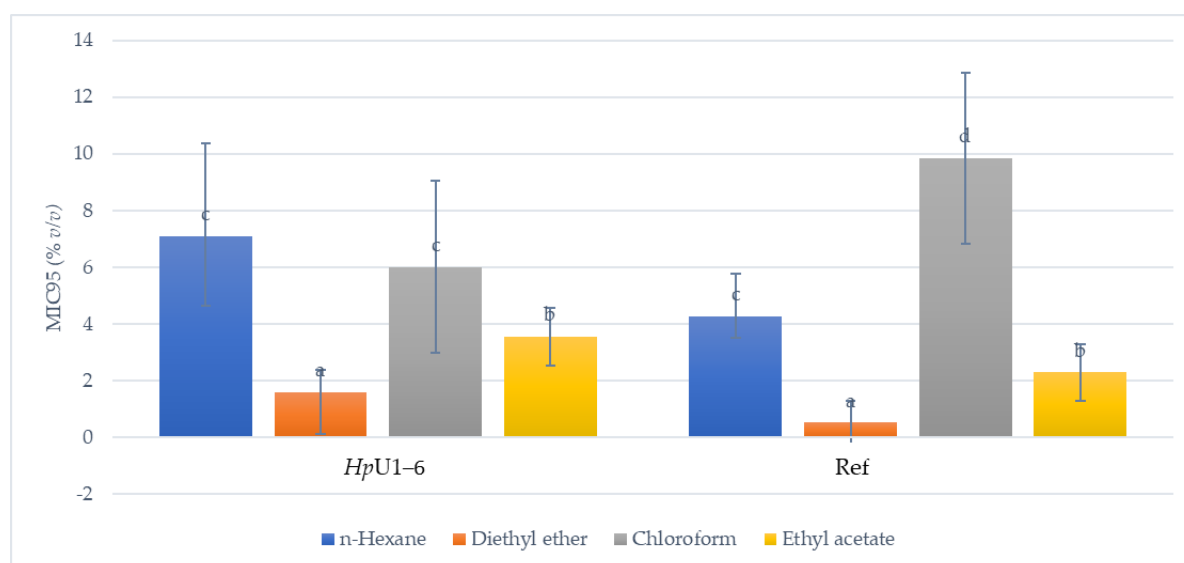


Figure S2. MIC₉₅ values (% v/v) of *n*-hexane, diethyl ether, chloroform, and ethyl acetate oregano honey extracts against (6) *H. pylori* clinical strains (HpU1–HpU6) isolated from ulcers and a reference strain (*H. pylori* DSM210321). Different letters above bars indicate statistically significant differences (ANOVA with Tukey's HSD, $p < 0.05$) for each group of strains.