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Article

Evaluation of the Antioxidant and Antimicrobial Activity of Natural Deep Eutectic Solvents (NADESs) Based on Primary and Specialized Plant Metabolites

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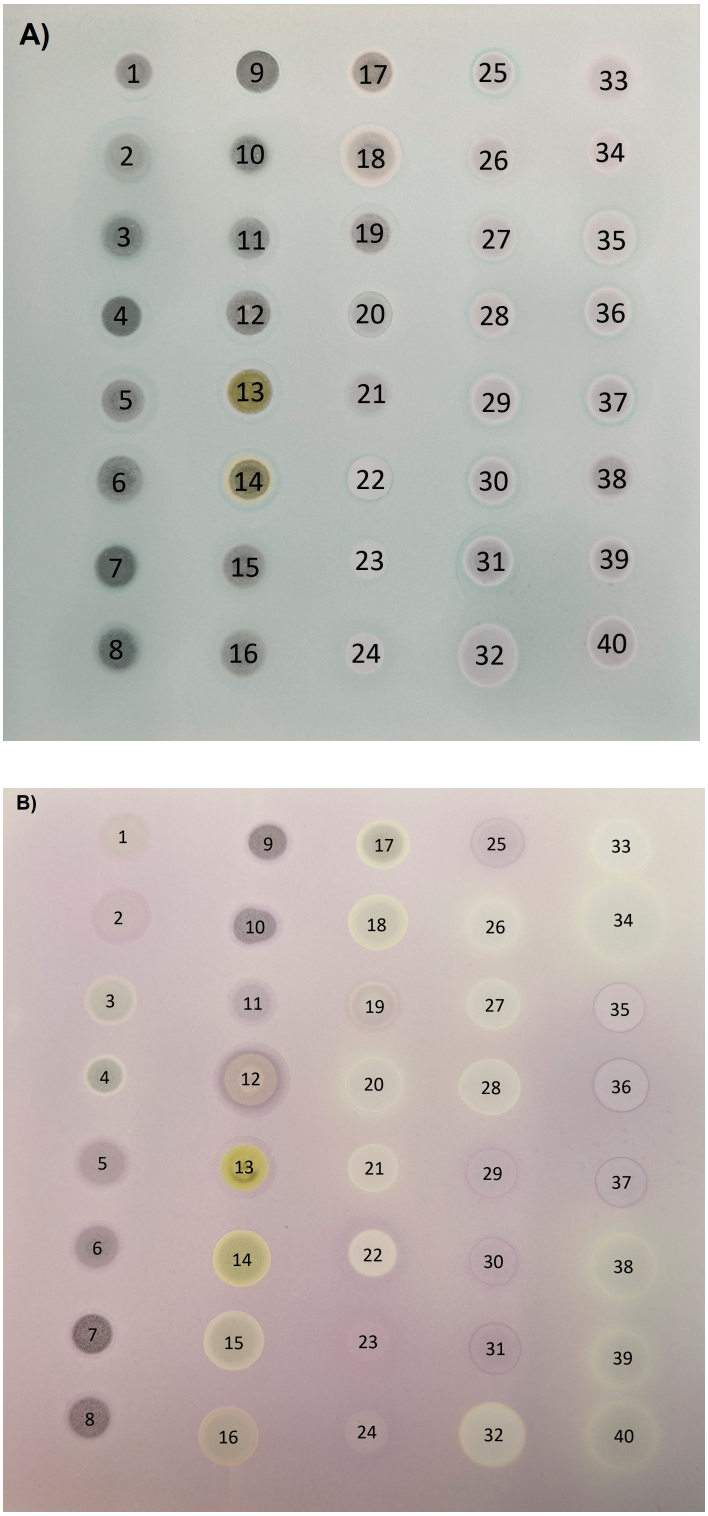


Figure S1. Photographs of bioautograms on HPTLC RP-18 plates after spraying with free radical solutions: A) - ABTS, B) – DPPH.

Table S1. Antioxidants' activity of NADESs tested. Values are expressed as trolox equivalent (mg Trolox/mL NADES); ND-not detected

No.	ABTS	DPPH	FRAP	CUPRAC
Hydrophilic PRIM based - NADES				
1	0.003±0.000 j	0.272±0.003 f	0.008±0.003 e	0.000±0.000 ND
2	0.007±0.004 j	0.144±0.005 f	0.000±0.000 ND	0.000±0.000 ND
3	0.011±0.001 j	0.255±0.012 f	0.000±0.000 ND	0.000±0.000 ND
4	0.004±0.001 j	0.347±0.018 f	0.000±0.000 ND	0.000±0.000 ND
5	0.002±0.001 j	0.035±0.008 f	0.000±0.000 ND	0.106±0.001 l
6	0.009±0.001 j	0.015±0.009 f	0.008±0.004 e	0.001±0.000 l
7	0.012±0.001 j	0.018±0.006 f	0.000±0.000 ND	0.000±0.000 ND
8	0.028±0.002 j	0.032±0.003 f	0.015±0.004 e	0.022±0.001 l
9	0.053±0.000 j	0.042±0.007 f	0.031±0.002 e	0.044±0.001 l
10	0.011±0.000 j	0.029±0.001 f	0.006±0.002 e	0.008±0.000 l
11	0.009±0.004 j	0.000±0.000 ND	0.000±0.000 ND	0.000±0.000 ND
Hydrophilic HEVO based - NADES				
12	0.372±0.075 j	0.303±0.038 f	0.634±0.034 e	0.862±0.049 l
13	16.364±27.107 hi	127.751±4.191 c	166.266±±20.147 c	199.824±5.883 i
14	68.242±7.511 ij	113.702±2.951 c	75.364±1.081 d	170.854±8.451 i
15	89.138±3.027 ij	0.340±0.012 f	0.701±0.054 e	0.907±0.058 l
16	0.316±0.001 j	0.260±0.013 f	4.745±0.340 e	0.116±0.005 l
17	395.092±60.464 g	155.070±2.703 b	330.247±37.555 b	813.880±20.058 a
18	521.677±86.287 fg	547.806±33.731 a	529.624±42.580 a	501.800±6.211 b
19	0.030±0.001 j	0.131±0.004 f	0.038±0.003 e	0.005±0.000 l
Lipophilic HEVO based – NADES				
20	861.246±33.029 a	36.648±0.846 d	23.577±1.000 e	468.240±19.368 bcd
21	617.453±77.246 def	32.005±1.093 de	11.354±0.691 e	472.390±19.720 bc
22	167.373±24.167 hi	13.943±0.780 ef	2.358±0.232 e	54.601±1.601 k
23	0.034±0.008 j	0.168±0.093 f	0.000±0.000 ND	0.368±0.012 l

24	0.047±0.010 j	0.176±0.093 f	0.000±0.000 ND	0.231±0.027 l
25	0.040±0.018 j	0.195±0.127 f	0.000±0.000 ND	0.097±0.003 l
26	729.972±52.575 abcd	35.360±0.702 de	17.143±0.977 e	415.950±20.331 ef
27	632.187±44.214 def	32.465±1.919 de	13.550±1.034 e	365.735±18.890 g
28	667.015±48.008 de	31.623±1.368 de	10.763±0.664 e	251.195±5.116 h
29	0.019±0.006 j	0.162±0.106 f	0.000±0.000 ND	0.082±0.007 l
30	0.049±0.003 j	0.178±0.092 f	0.000±0.000 ND	0.069±0.002 l
31	0.033±0.019 j	0.218±0.002 f	0.000±0.000 ND	0.074±0.002 l
32	234.349±71.893 h	16.590±4.300 def	4.714±1.096 e	128.355±3.521 j
33	558.514±80.477 ef	29.146±4.562 de	15.145±1.625 e	405.990±16.265 f
34	848.520±24.167 ab	34.871±1.653 de	19.033±1.460 e	452.678±17.789 cde
35	0.061±0.022 j	0.166±0.095 f	0.016±0.005 e	0.166±0.003 l
36	0.025±0.011 j	0.190±0.098 f	0.000±0.000 ND	0.403±0.007 l
37	0.032±0.008 j	0.172±0.086 f	0.000±0.000 ND	0.299±0.016 l
38	720.596±27.906 bcd	35.360±1.765 de	15.118±0.825 e	432.135±10.613 def
39	691.796±61.472 cde	35.975±0.505 de	17.654±1.029 e	334.195±18.781 g
40	806.325±17.362 abc	35.692±1.124 de	16.838±1.376 e	429.023±7.624 ef

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Table S2. Antimicrobial activity of tested NADESs. Values are expressed as a diameters of the zones of inhibition (mm). 1

	Gram-positive bacteria					**Gram-negative bacteria**			***Candida* Yeasts**		
	Staphylococcus epidermidis	*Bacillus cereus*	MSSA	MRSA	*Enterococcus faecalis*	*Salmonella Tiphimurium*	*Escherichia coli*	*Pseudomonas aeruginosa*	*C. albicans* ATCC 10231	*C. glabrata* ATCC 90030	*C. auris* CDC B11903
	Vancomycin (30μg)					Ciprofloxacin (5 μg)			Fluconazole (25 μg)		
	19.67±0.58 hij	12.67±3.21 klm	16.33±2.08 fghi	15.5±2.12 ij	11.00±2.83 kl	33.00±4.58 a	32.00±1.41 a	29.33±5.77 a	19.67±1.15 jk	18.67±1.15 l	23.33±0.58 hij
No.	**Hydrophilic PRIM based – NADES**										
1	14.33±2.08 mno	13.67±1.53 ijkl	10.67±1.15 op	12.33±1.15 lm	12.00±0.00 jk	10.00±0.00 jk	11±1.00 mno	12.33±1.15 fg	0.00±0.00 n	0.00±0.00 p	6.67±0.58 r
2	13.33±4.04 opq	13±1.00 jklm	7.33±1.15 q	8.17±0.76 no	11.33±0.58 klm	8.00± 0.00 o	8.33±0.58 rst	10.67±2.52 hi	6.67±0.58 m	7.00±1.00 o	8.33±0.58 p
3	19.00±2.65 ijk	16±1.00 gh	12.33±0.58 mno	12.33±0.58 lm	13.33±0.58 hij	8.33±0.58 no	11.00±1.00 mno	13.00±2.00 fg	0.00±0.00 n	0.00±0.00 p	0.00±0.00 s
4	23.67±0.58 fgh	18±1.00 fg	15±2.65 hijk	15.67±2.08 ij	18.33±3.06 efgh	10.33±2.08 jkl	13.33±1.53 jk	18.67±0.58 cd	0.00±0.00 n	0.00±0.00 p	6.67±0.58 r
5	6.33±0.58 t	6.67±1.15 r	0.00±0.00 r	6.67±1.15 p	6.33±0.58 q	6.33±0.58 p	7.00±0.00 st	6.67±0.58 o	0.00±0.00 n	0.00±0.00 p	6.67±0.58 r
6	6.33±0.58 t	6.67±0.58 qr	6.67±1.15 q	6.67±1.15 p	6.33±0.58 q	0.00±0.00 q	7.00±0.00 st	6.33±0.58 o	6.33±0.58 m	6.67±0.58 o	6.33±0.58 r
7	6.33±0.58 t	6.67±0.58 qr	6.67±1.15 q	6.67±1.15 p	0.00±0.00 r	0.00±0.00 q	0.00±0.00 u	0.00±0.00 p	0.00±0.00 n	0.00±0.00 p	6.33±0.58 r
8	0.00±0.00 u	0.00±0.00 s	6.67±1.15 q	0.00±0.00 q	0.00±0.00 r	0.00±0.00 q	0.00±0.00 u	0.00±0.00 p	0.00±0.00 n	0.00±0.00 p	6.67±0.58 r
9	0.00±0.00 u	6.33±0.58 r	6.67±0.58 q	6.33±0.58 p	0.00±0.00 r	6.67±0.58 p	0.00±0.00 u	0.00±0.00 p	0.00±0.00 n	0.00±0.00 p	6.67±0.58 r
10	0.00±0.00 u	0.00±0.00 s	6.67±0.58 q	6.33±0.58 p	0.00±0.00 r	6.67±0.58 p	0.00±0.00 u	0.00±0.00 p	0.00±0.00 n	0.00±0.00 p	6.33±0.58 r
11	0.00±0.00 u	6.33±0.58 r	6.67±0.58 q	0.00±0.00 q	6.33±0.58 q	6.67±0.58 p	6.67±0.58 t	0.00±0.00 p	0.00±0.00 n	6.67±0.58 o	0.00±0.00 s
	Hydrophilic HEVO based - NADES										

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12	6.33±0.58 t	6.33±0.58 r	7.00±1.00 q	6.67±1.15 p	0.00±0.00 r	6.67±0.58 p	0.00±0.00 u	0.00±0.00 p	0.00±0.00 n	6.67±0.58 o	0.00±0.00 s
13	7.67±0.58 st	0.00±0.00 s	6.67±0.58 q	6.67±0.58 p	0.00±0.00 r	0.00±0.00 q	7.00±0.00 st	6.67±0.58 p	0.00±0.00 n	0.00±0.00 p	0.00±0.00 s
14	9.00±3.46 u	6.67±0.58 qr	0.00±0.00 r	6.67±0.58 p	0.00±0.00 r	6.67±0.58 p	0.00±0.00 u	6.33±0.58 o	0.00±0.00 n	0.00±0.00 p	0.00±0.00 s
15	11.00±1.00 rs	11±0.00 nop	10.33±0.58 p	10±0.00 mn	10.33±1.15 mno	9.00±0.00 lmn	9.00±0.00 qrs	10.33±0.58 i	0.00±0.00 n	0.00±0.00 p	6.67±0.58 r
16	14.00±0.00 no	11±1.00 no	14.33±0.58 ijkl	13.67±0.58 kl	11.00±1.00 lmn	12.33±0.58 hi	12.33±0.58 kl	12.33±1.15 fg	7.00±0.00 lm	7.00±0.00 o	7.33±0.58 q
17	11.67±1.15 qr	9±0.00 op	13.67±0.58 jklm	12.33±1.15 lm	10.00±1.00 no	9.33±0.58 klm	10.00±0.00 pqr	9.67±0.58 ij	6.67±0.58 m	7.00±1.00 o	6.33±0.58 r
18	13.00±0.00 opq	11±1.00 no	15.33±1.15 ghij	14±0.00 jk	13.00±2.00 ijk	11.00±1.00 ij	12.67±1.15 kl	11.67±0.58 gh	7.67±0.58 l	7.00±0.00 o	7.33±0.58 q
19	13.33±2.31 op	11.67±0.58 mn	11.33±0.58 nop	11.67±6.66 m	9.67±0.58 op	11.00±1.00 ij	11.33±0.58 mn	10.33±0.58 i	7.50±0.50 l	6.67±0.58 o	7.33±0.58 q
Lipophilic HEVO based – NADES											
20	44.67±2.52 a	34.67±0.58 a	33.67±3.06 a	39.33±2.52 a	28.00±1.00 ab	26.67±2.08 ab	26.67±0.58 ab	8.67±0.58 jk	65.33±1.15 a	59.67±2.52 a	72.33±2.08 ab
21	34.33±2.31 bcd	25.67±2.08 cd	23.00±1.73 bc	28.67±1.15 cde	21.67±0.58 cdef	18.00±2.00 ef	17.33±0.58 ghi	7.00±0.00 no	48.00±1.73 e	50.67±2.52 de	66.00±1.73 abc
22	18.67±2.52 ijk	17.67±1.53 fg	14.67±1.53 hijkl	19.67±3.51 gh	11.00±1.00 lmn	14.67±1.53 gh	11.67±1.53 lm	7.00±0.00 no	30.33±1.53 i	19.33±1.53 kl	20.00±2.65 jklm
23	7.00±0.00 t	8.33±1.53 pq	7.00±0.00 q	7.33±0.58 op	0.00±0.00 r	9.33±0.58 klm	11.33±0.58 mn	7.33±0.58 mn	10.00±0.00 k	11.33±0.58 n	9.67±0.58 op
24	11.67±0.58 qr	14.00±1.73 ijk	13.00±1.00 lmn	15.00±2.00 jk	8.67±0.58 pq	8.67±1.15 mno	11.00±1.00 mno	0.00±0.00 p	25.33±2.08 j	12.67±0.58 mn	13.67±0.58 nop
25	14.33±1.53 mno	15.00±1.73 hi	13.67±1.53 jklm	18.67±1.53 gh	10.33±1.15 mno	8.33±0.58 no	10.00±1.00 opq	0.00±0.00 p	40.33±2.52 f	30.33±2.89 i	41.00±3.00 fgh
26	33.00±1.73 de	28.67±3.79 bc	26.67±2.31 ab	32.00±1.73 bc	23.67±1.15 bcde	20.00±1.00 cde	22.33±2.31 bcdef	7.67±0.58 lm	50.67±2.08 de	50.67±3.21 de	60.67±2.52 cde
27	28.00±1.73 efg	20.33±0.58 def	19.67±0.58 cde	27.00±1.00 de	19.00±1.00 defg	13.00±1.00 gh	15.67±0.58 hij	0.00±0.00 p	40.00±1.00 f	40.00±2.00 fg	51.33±3.51 efg
28	22.67±1.53 ghi	18.33±1.53 efg	16.67±1.15 efgh	20.33±2.08 fg	15.33±1.15 ghi	12.33±1.15 hi	14.00±1.73 ijk	0.00±0.00 p	38.00±1.00 g	37.00±1.00 gh	54.67±2.08 ef

29	16.00±1.73 klm	14.67±2.08 hij	12.33±0.58 mno	15.33±1.53 ijk	11.67±0.58 kl	9.33±0.58 klm	11.00±1.73 mno	0.00±0.00 p	37.67±1.15 g	17.67±2.08 lm	20.00±1.00 jkl
30	14.00±1.00 nop	12.33±0.58 lmn	13.33±1.15 klm	17.00±1.00 hi	10.00±0.00 op	9.00±1.00 lmn	10.67±0.58 nop	0.00±0.00 p	34.00±1.73 h	17.67±1.53 l	17.33±0.58 lmn
31	12.67±0.58 pqr	13.67±1.53 ijkl	12.33±2.31 mnop	15.67±1.15 ij	10.33±0.58 no	8.67±0.58 mno	10.67±0.58 nop	0.00±0.00 p	36.67±2.52 g	32.00±3.46 hi	34.33±3.79 ghi
32	23.67±0.58 fgh	22.67±0.58 de	21.67±1.15 bcd	23.67±1.53 ef	18.33±0.58 fgh	20.33±1.53 cde	19.67±1.53 efg	23.67±1.15 ab	38.00±1.00 g	38.33±2.52 g	43.33±2.08 fgh
33	31.67±1.53 def	26.33±0.58 cd	26.67±1.53 ab	28.33±0.58 cde	23.67±2.31 bcd	18.33±1.53 ef	20.33±1.53 defg	19.00±1.00 bcd	53.33±0.58 bc	46.67±3.06 ef	59.00±2.00 de
34	38.67±0.58 ab	28.00±1.00 bc	30.33±2.89 a	34.33±1.53 ab	26.67±1.53 ab	20.67±0.58 abc	24.67±2.08 abc	14.67±0.58 de	59.00±1.73 ab	52.33±3.06 cd	64.00±2.00 bcd
35	16.67±1.15 jkl	19.00±0.00 ef	18.00±2.65 defg	20.33±2.08 fg	12.33±1.15 jk	19.00±1.00 def	19.33±0.58 fgh	26.67±0.58 a	30.33±0.58 i	23.00±1.00 jk	16.00±1.00 mno
36	14.00±0.00 no	16.33±0.58 gh	18.00±0.00 cdef	20.67±1.53 fg	11.67±0.58 kl	16.33±0.58 fg	15.33±1.53 hij	20.33±0.58 bc	30.67±1.53 i	26.00±3.46 ij	18.33±0.58 klm
37	14.67±0.58 lmn	14.00±1.00 ijk	17.00±1.00 efg	19.00±1.00 gh	9.67±0.58 op	12.33±1.53 hi	12.67±0.58 k	13.33±1.15 ef	39.33±1.15 f	26.67±1.53 ij	21.33±1.53 ijk
38	36.67±2.08 abcd	28.67±1.53 abc	31.67±2.08 a	36.00±1.73 ab	24.33±0.58 bc	20.33±0.58 bcd	22.67±1.53 bcd	8.33±0.58 kl	52.00±2.00 cd	53.00±1.00 cd	64.33±1.53 bcd
39	33.33±1.53 cde	30.00±2.65 abc	28.00±4.58 ab	31.33±2.89 bcd	26.67±1.53 ab	18.67±0.58 ef	21.67±0.58 cdef	7.67±0.58 lm	52.33±0.58 cd	54.67±2.08 bc	74.33±1.53 a
40	38.33±2.52 abc	30.33±0.58 ab	31.00±3.61 a	32.33±1.53 bc	30.33±2.52 a	20.33±0.58 bcd	22.33±1.15 bcde	8.33±0.58 kl	51.00±1.00 d	56.67±1.53 ab	69.33±7.02 ab

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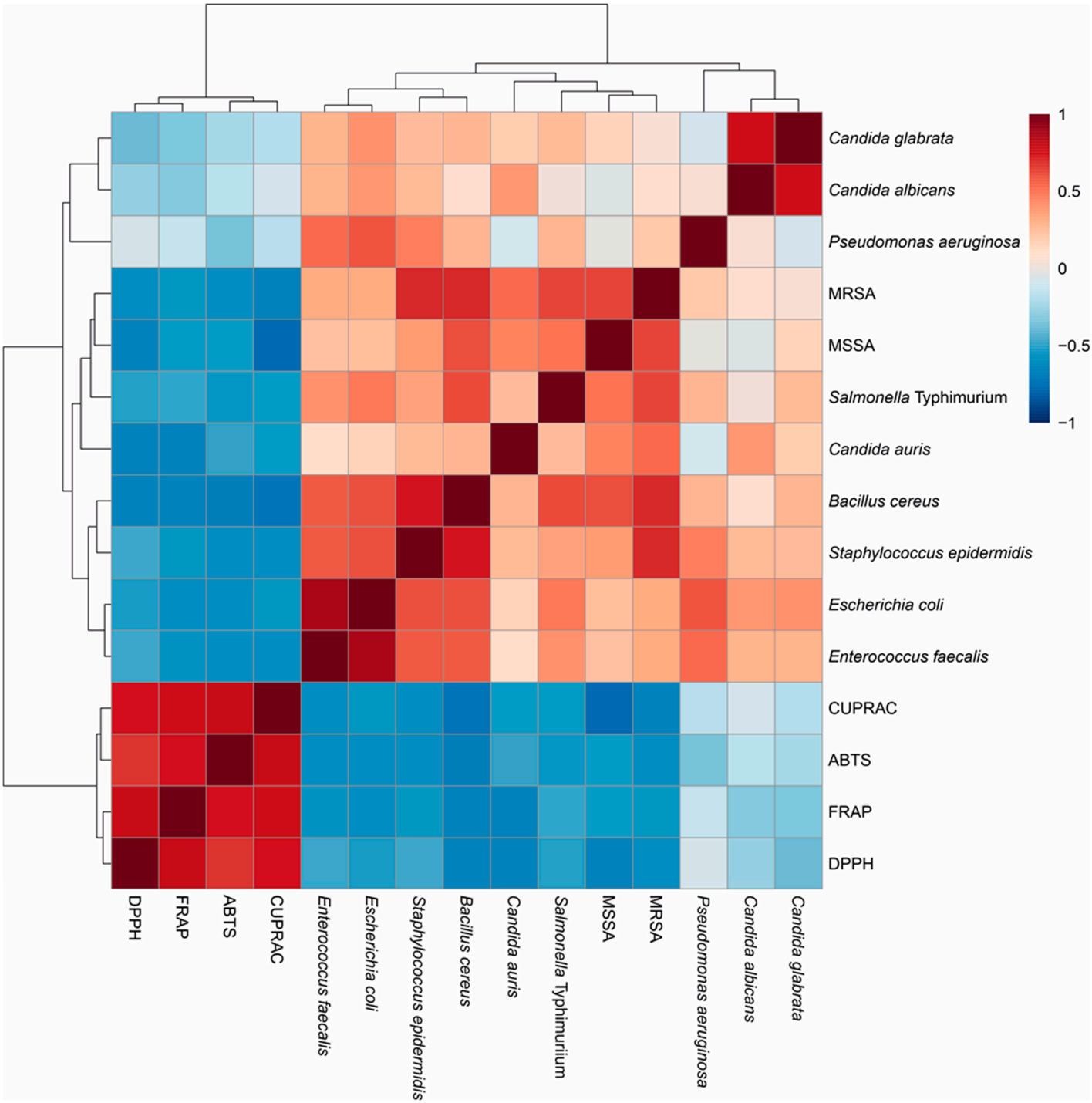
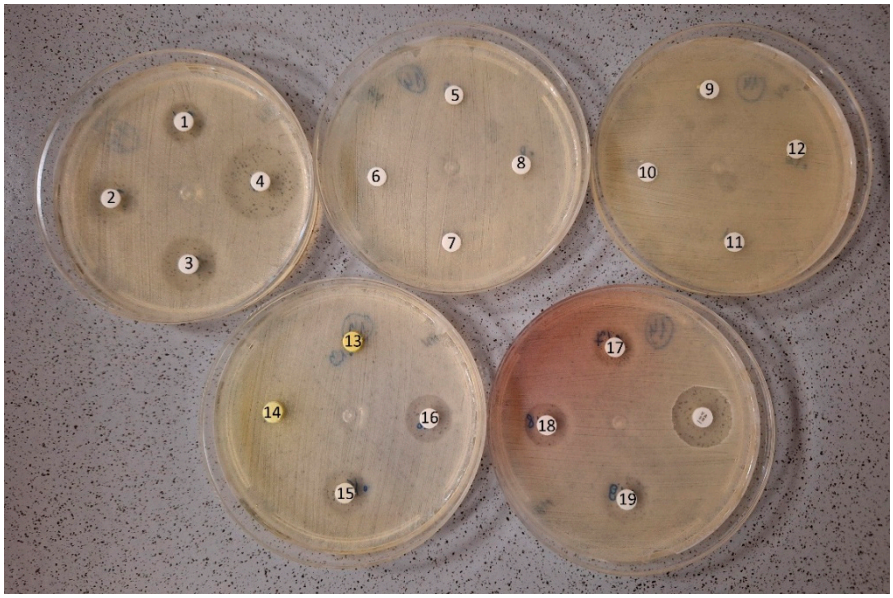
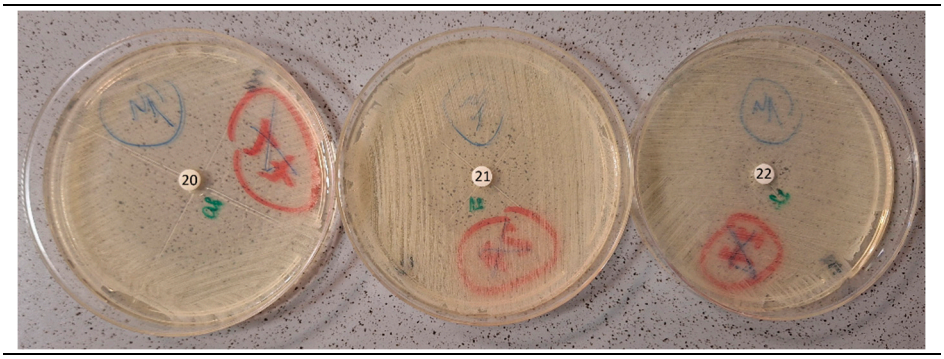
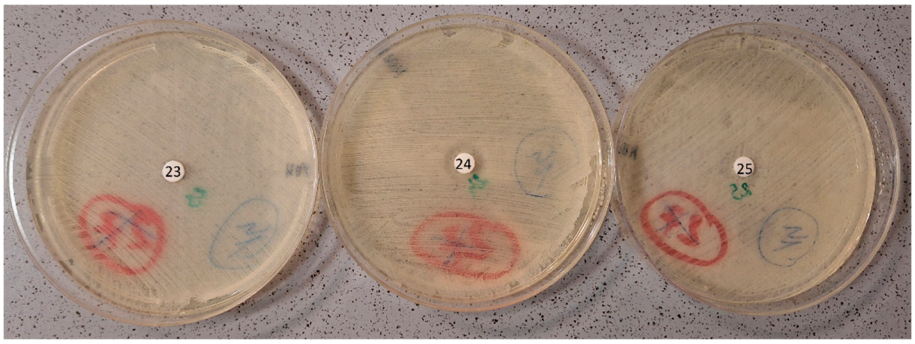
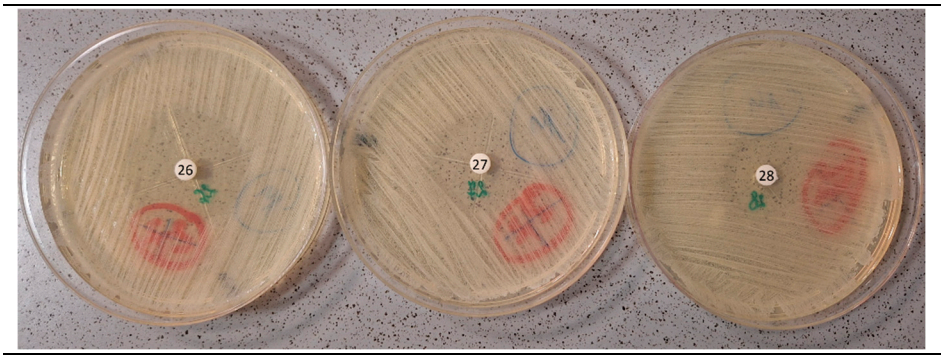


Figure S2. Heatmap of Pearson correlation coefficients (red = positive, blue = negative) with hierarchical clustering using Euclidean distance and Ward's method.

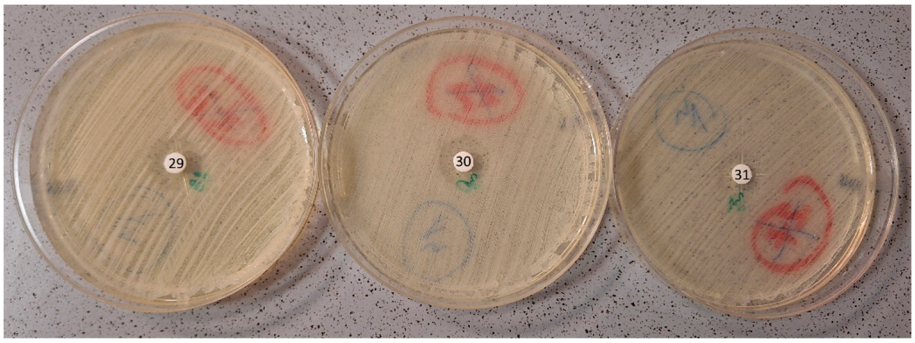
https://doi.org/10.3390/30214219

Table S3. Graphical representation of the results from the halo assay (disk diffusion test).

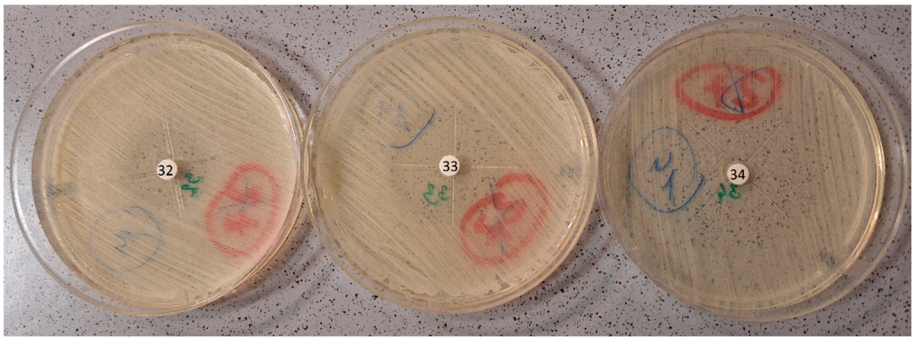
***Staphylococcus epidermidis* ATCC 12228**
Hydrophilic NADES with positive-control

Lipophilic NADES
***1,8*-Cineole:Thymol**

***1,8*-Cineole:DL-Menthol**

Camphor:Thymol



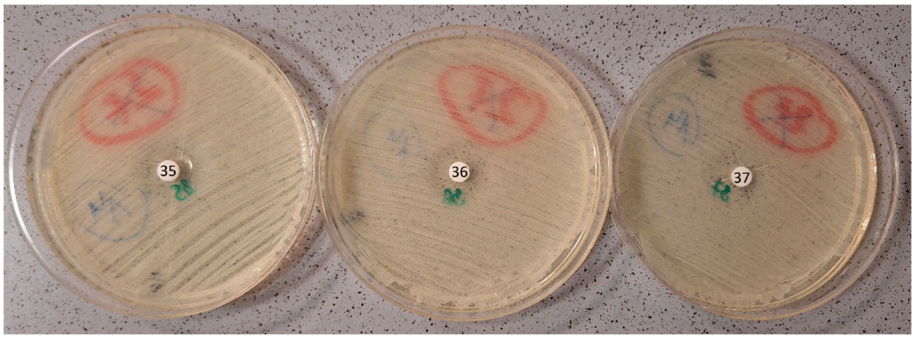
Camphor:DL-Menthol



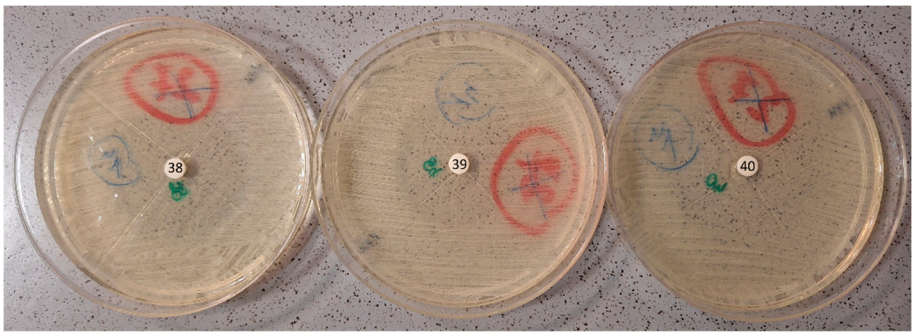
Benzyl alcohol:Thymol



Benzyl alcohol:DL-Menthol

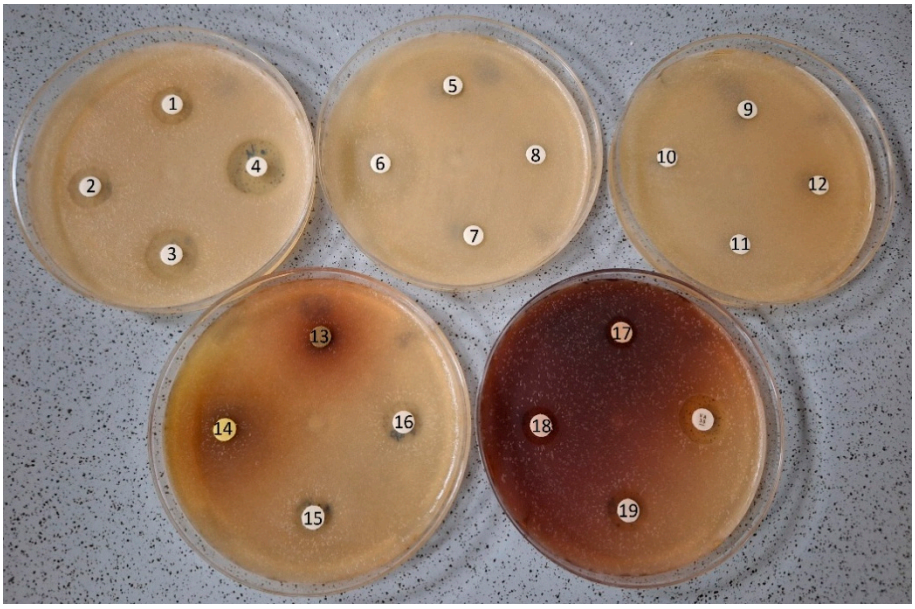


Borneol:Thymol



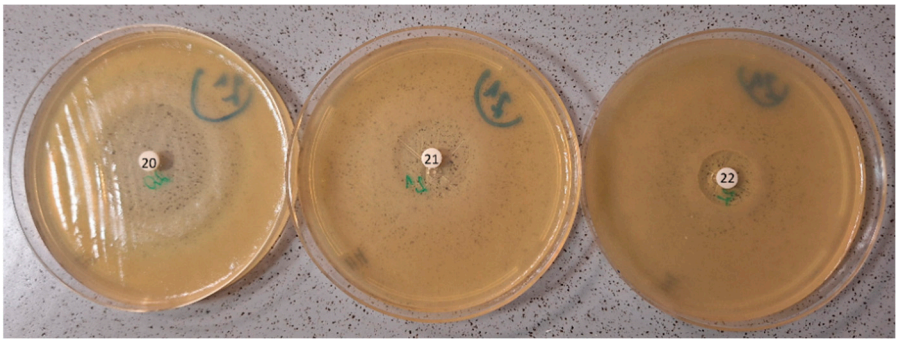
Bacillus cereus ATCC 10876

Hydrophilic NADES with positive-control

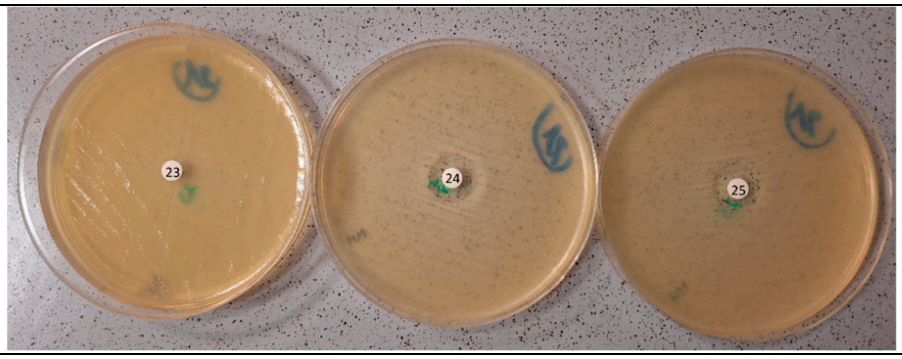


Lipophilic NADES

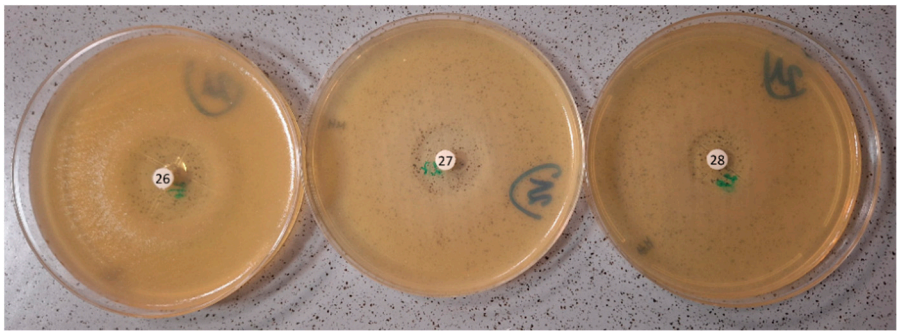
***1,8*-Cineole:Thymol**



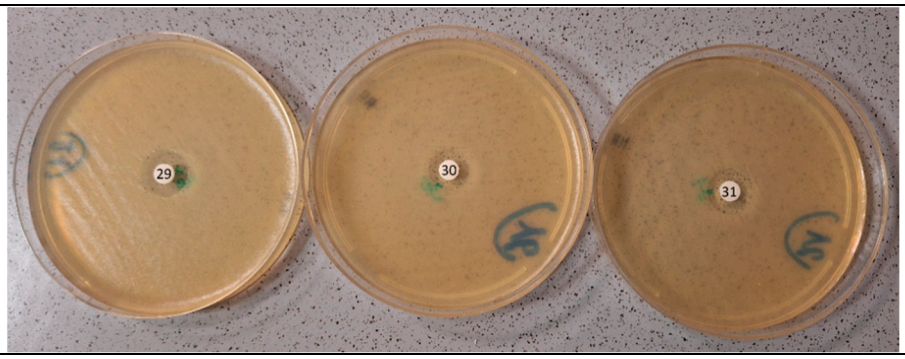
***1,8*-Cineole:DL-Menthol**



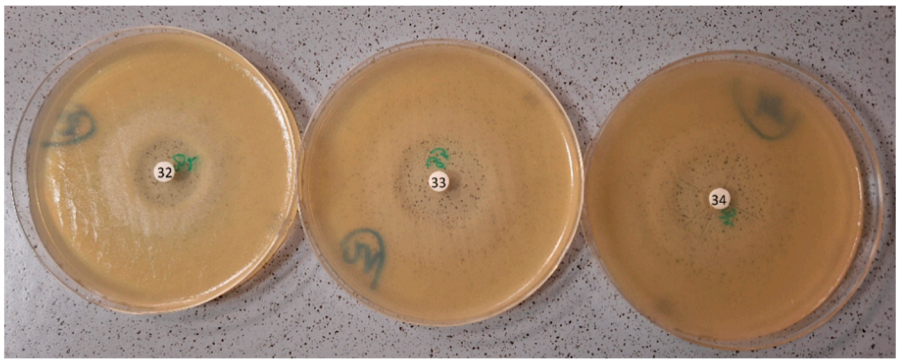
Camphor:Thymol



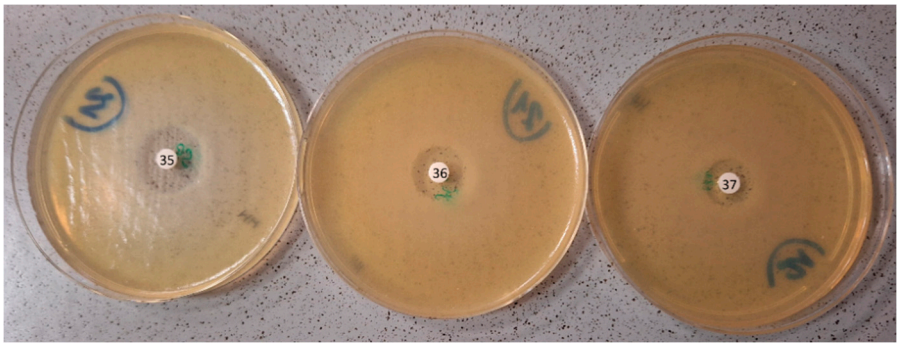
Camphor:DL-Menthol



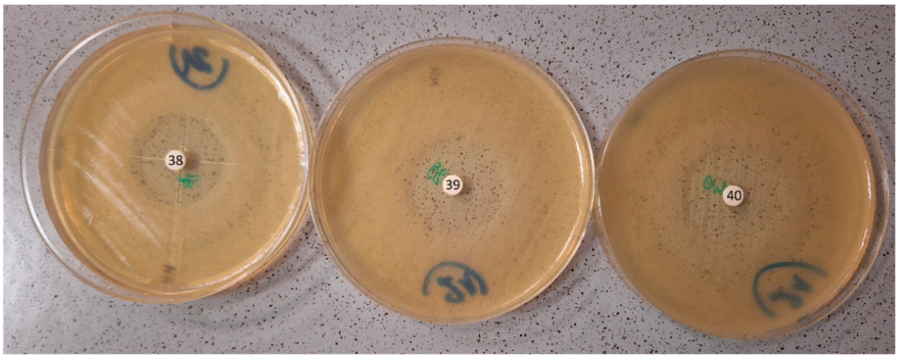
Benzyl alcohol:Thymol



Benzyl alcohol:DL-Menthol

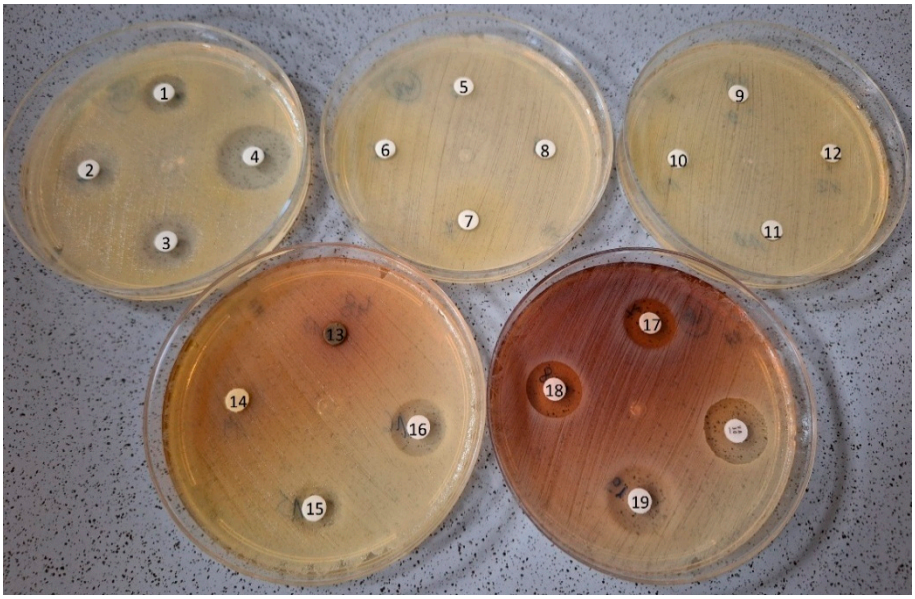


Borneol:Thymol



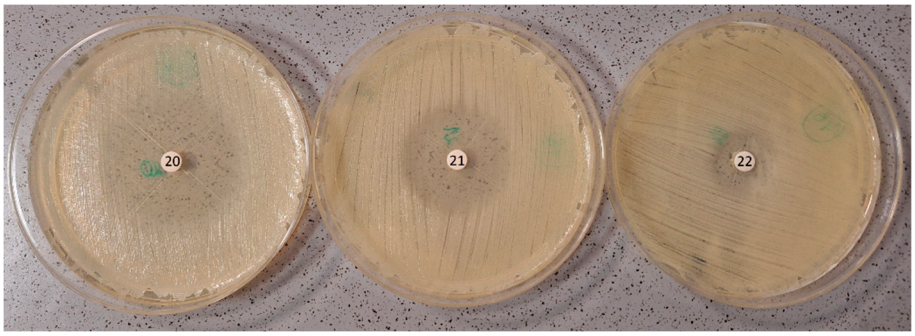
Staphylococcus aureus ATCC 29213 (MSSA)

Hydrophilic NADES with positive-control

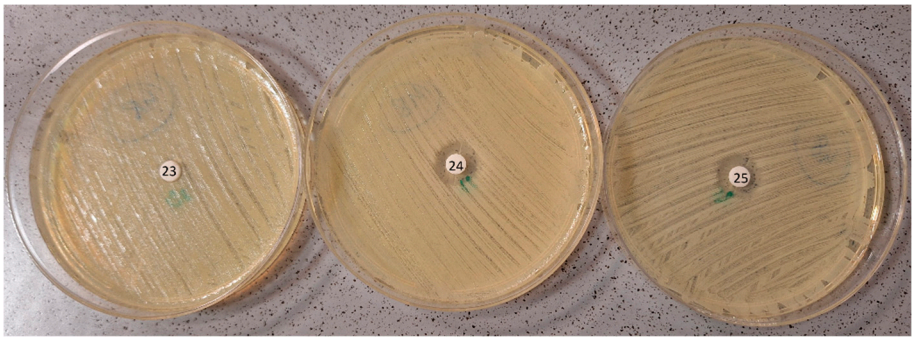


Lipophilic NADES

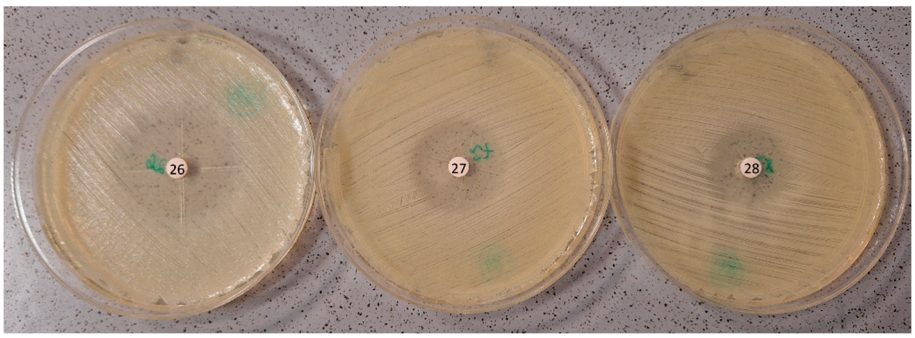
***1,8*-Cineole:Thymol**



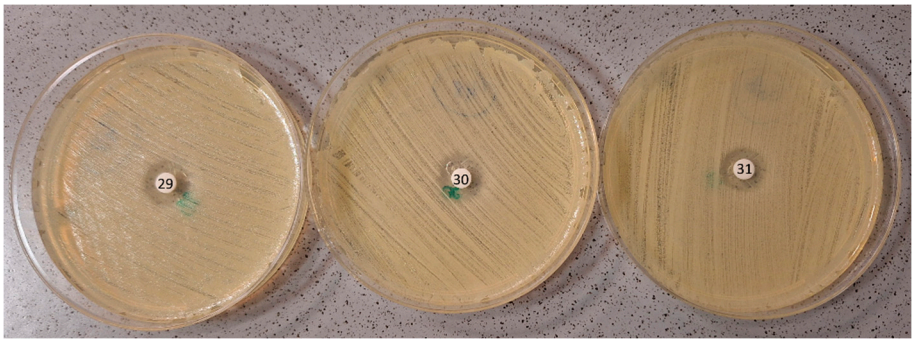
***1,8*-Cineole:DL-Menthol**



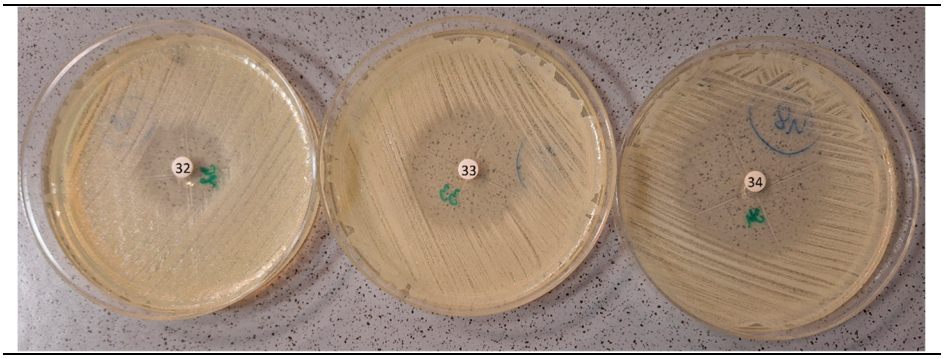
Camphor:Thymol



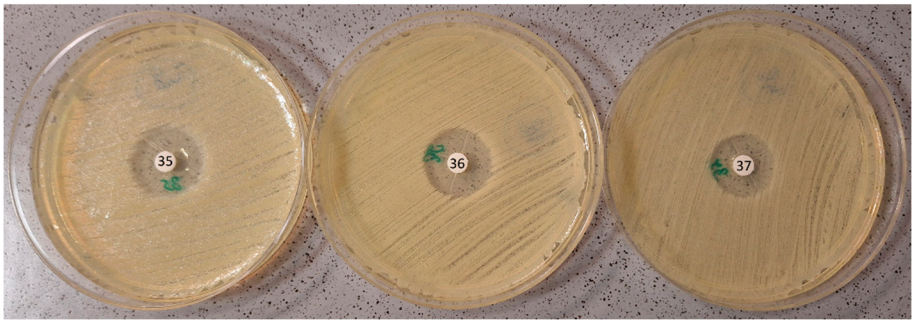
Camphor:DL-Menthol



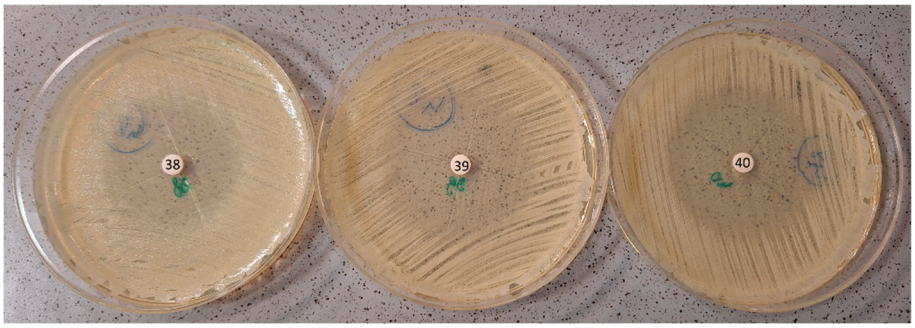
Benzyl alcohol:Thymol

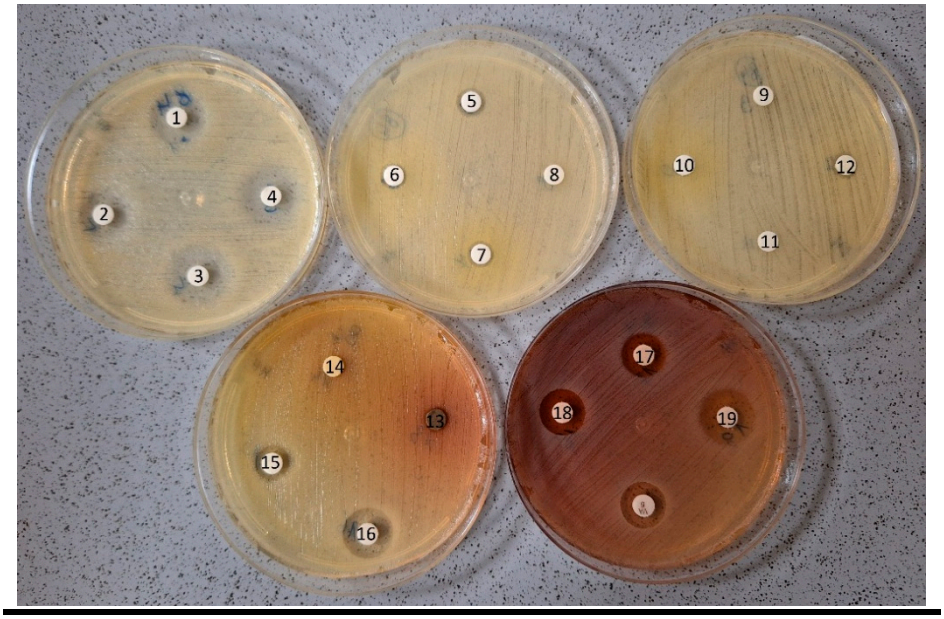
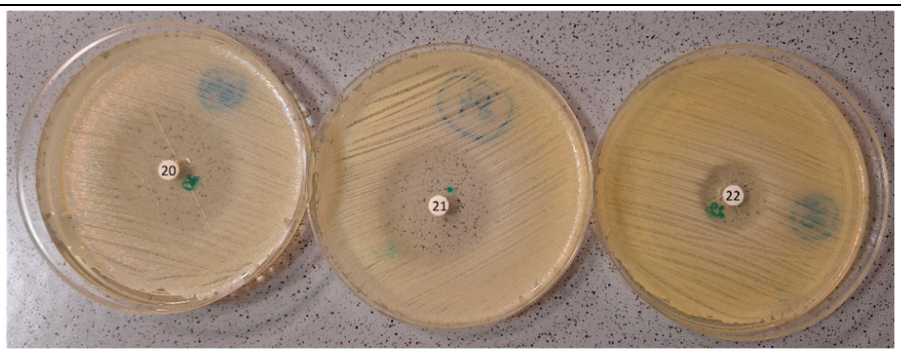
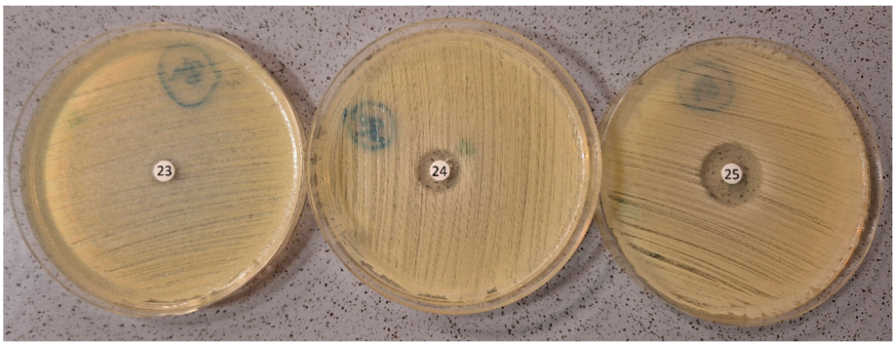


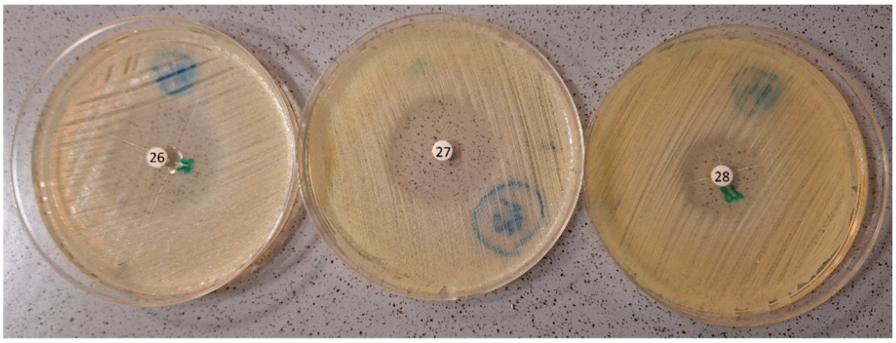
Benzyl alcohol:DL-Menthol



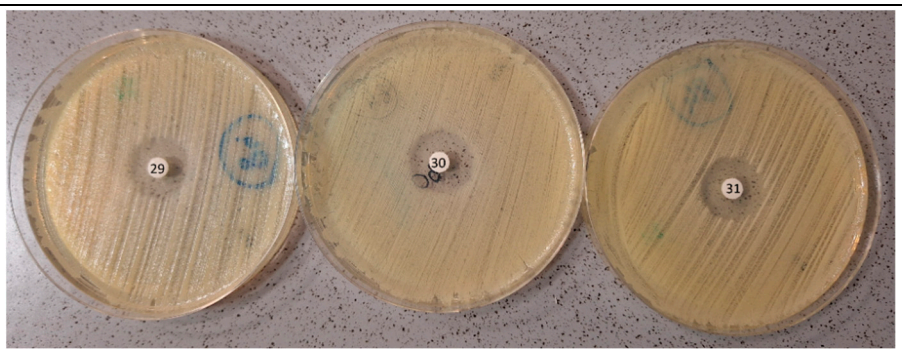
Borneol:Thymol



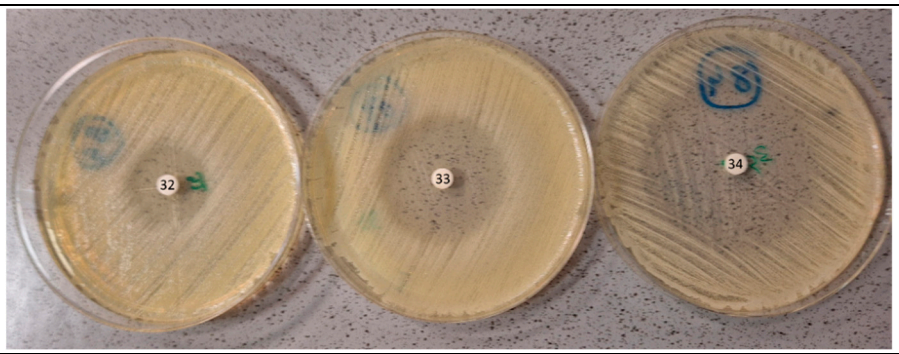
***Staphylococcus aureus* ATCC BAA-1707 (MRSA)**
Hydrophilic NADES with positive-control

Lipophilic NADES
***1,8*-Cineole:Thymol**

***1,8*-Cineole:DL-Menthol**

Camphor:Thymol



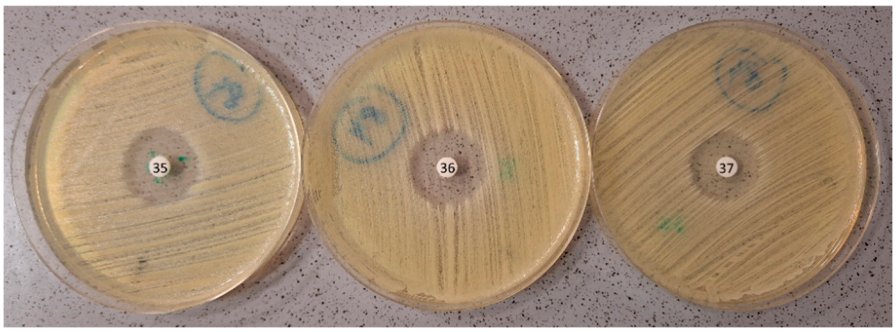
Camphor:DL-Menthol



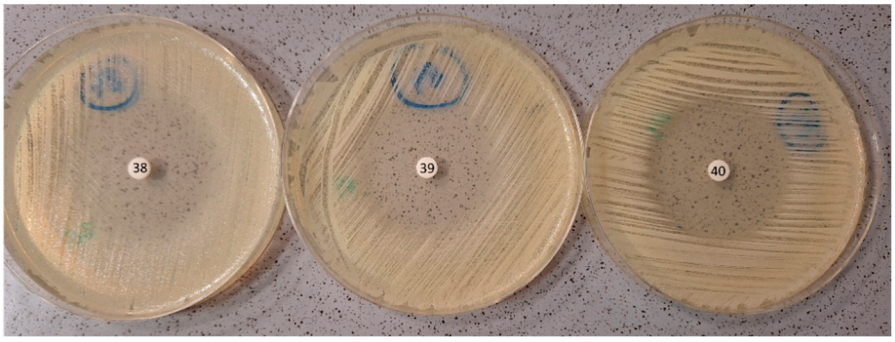
Benzyl alcohol:Thymol



Benzyl Alcohol:DL-Menthol

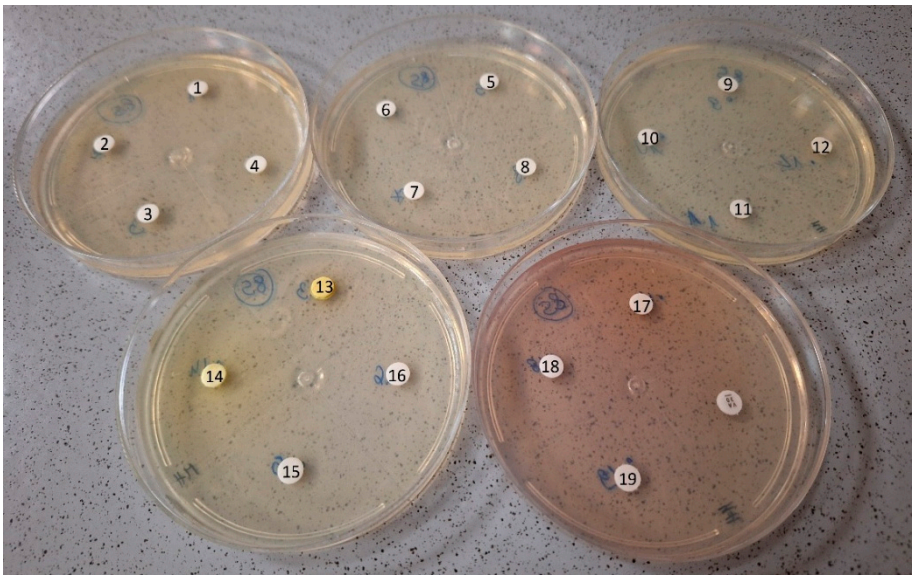


Borneol:Thymol



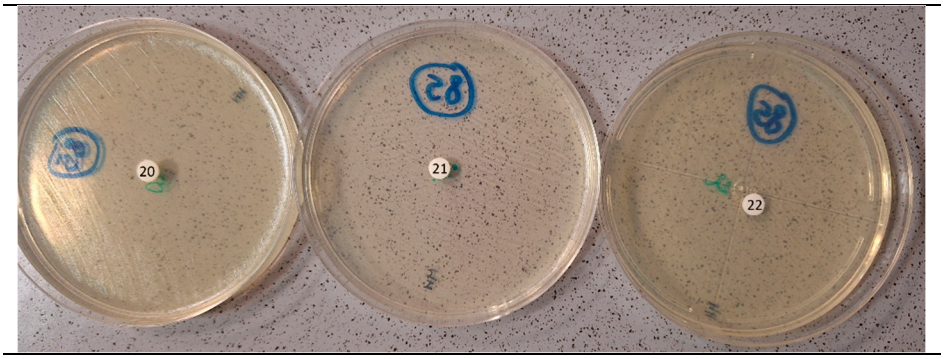
Enterococcus faecalis ATCC 51299

Hydrophilic NADES with positive-control

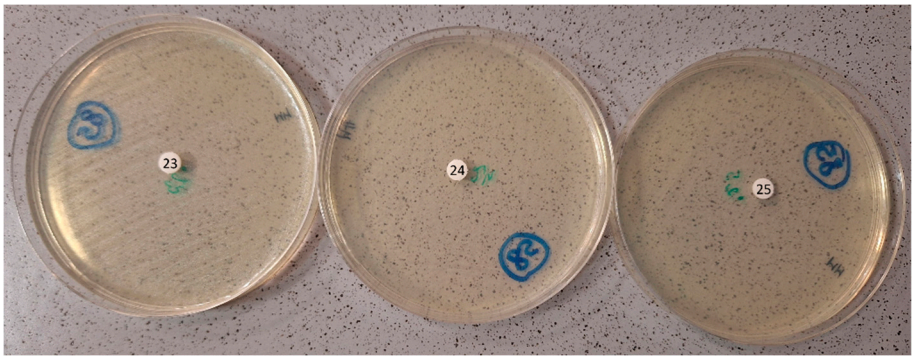


Lipophilic NADES

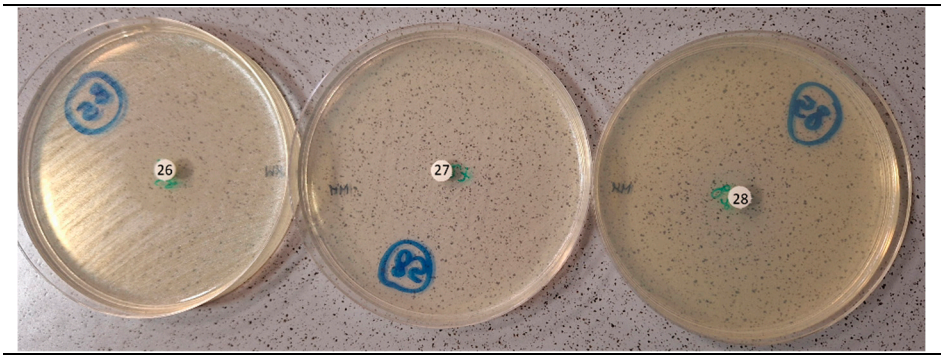
***1,8*-Cineole:Thymol**



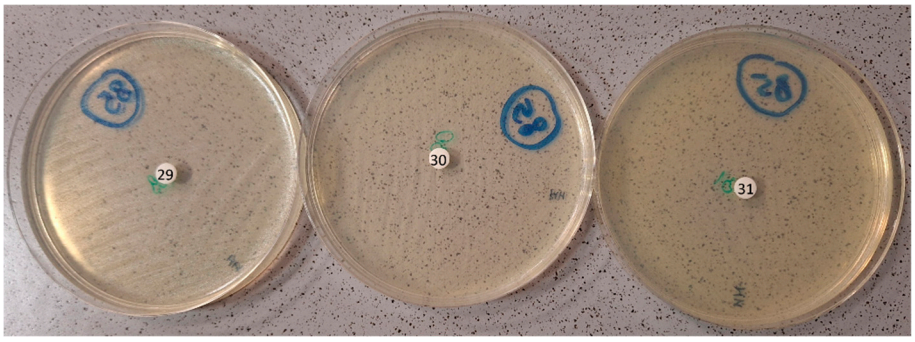
1,8*-Cineole:*DL-Menthol



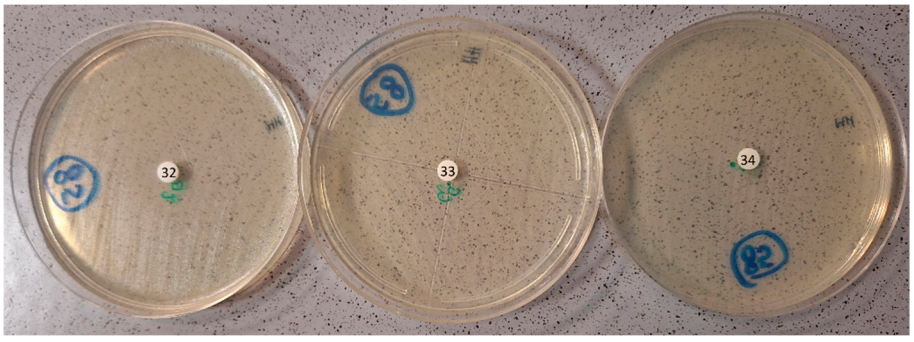
Camphor:Thymol



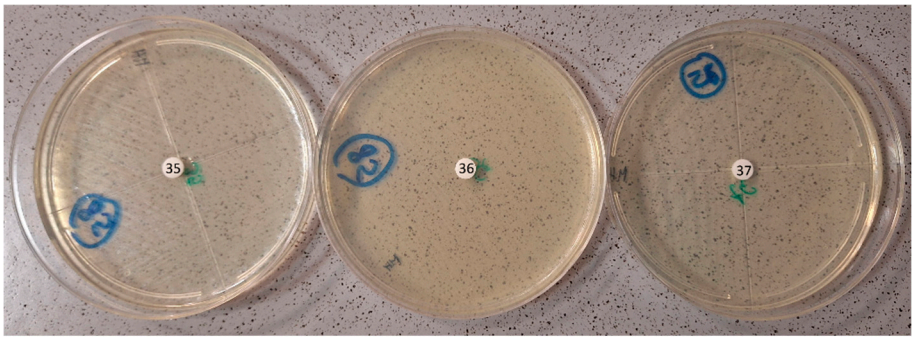
Camphor:DL-Menthol



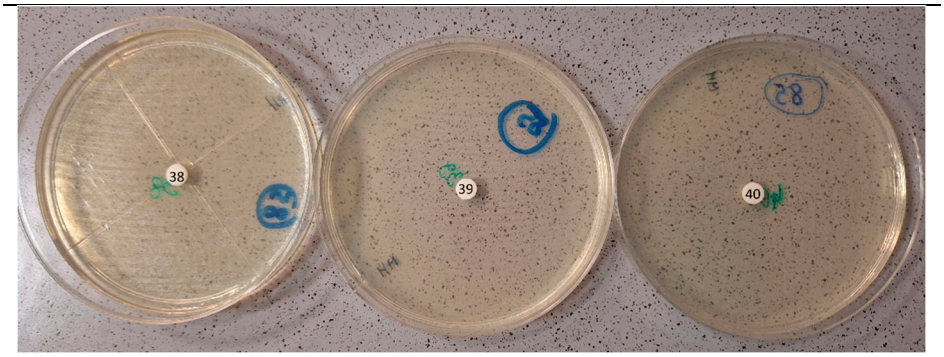
Benzyl alcohol:Thymol



Benzyl alcohol:DL-Menthol

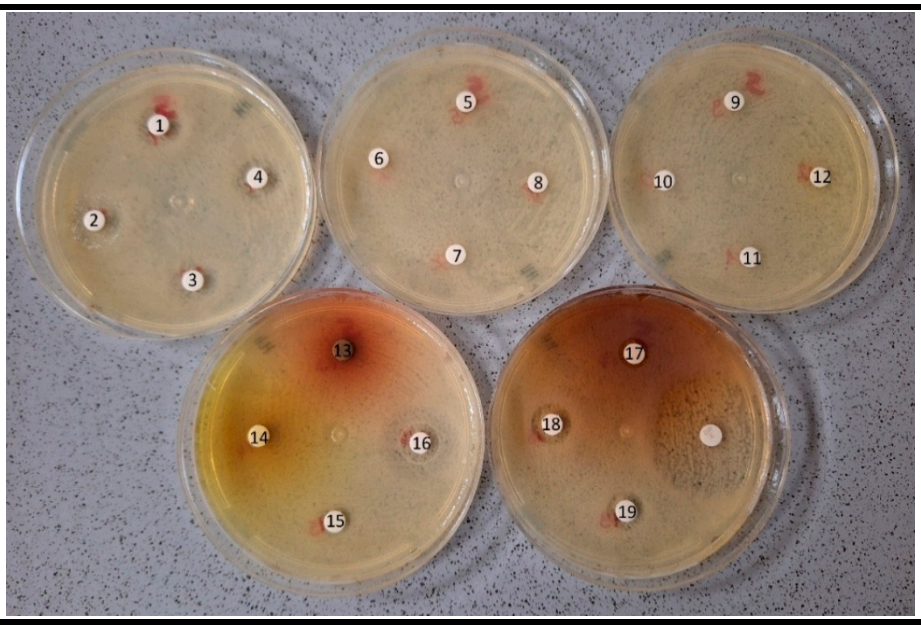


Borneol:Thymol



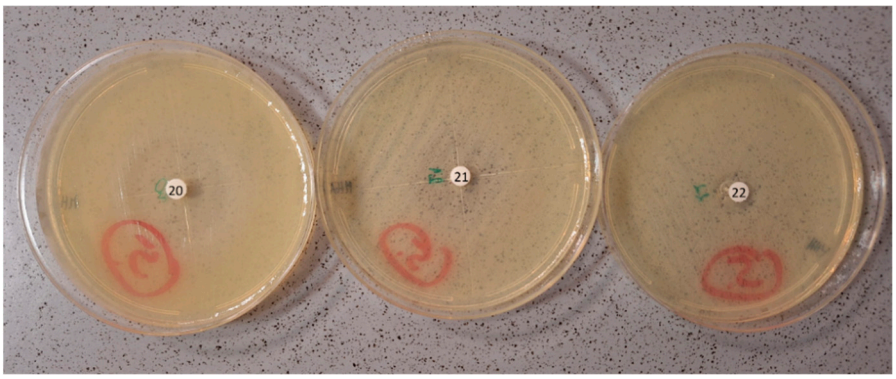
Salmonella Tiphimurium ATCC 14028

Hydrophilic NADES with positive-control

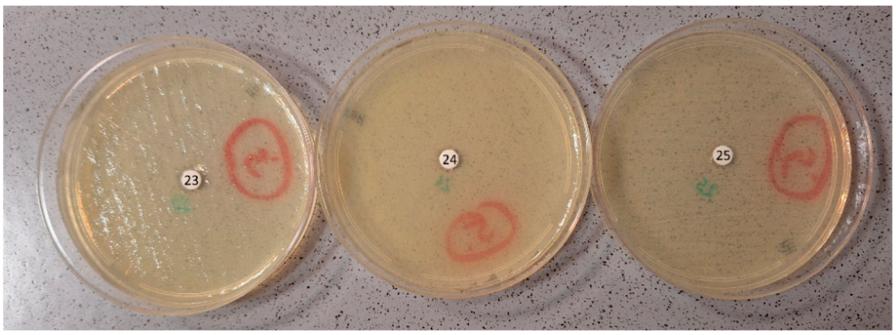


Lipophilic NADES

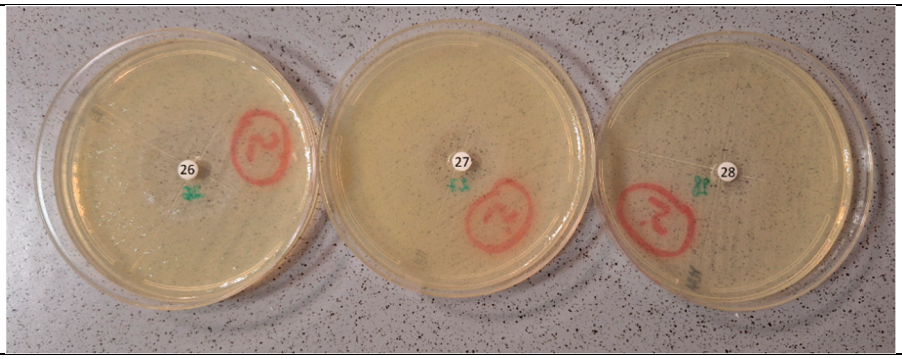
***1,8*-Cineole:Thymol**



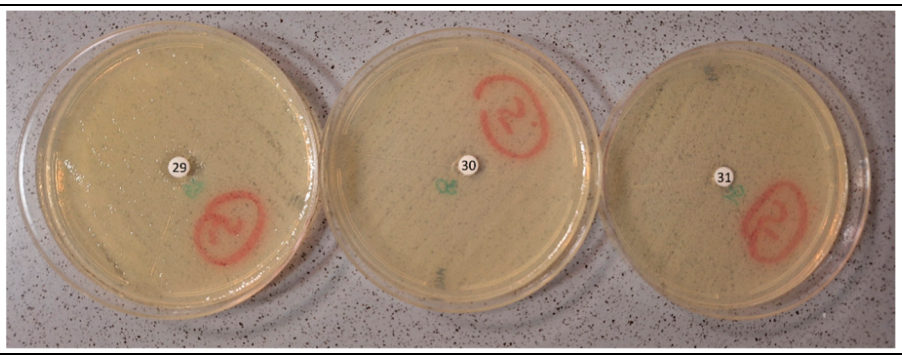
***1,8*-Cineole:DL-Menthol**



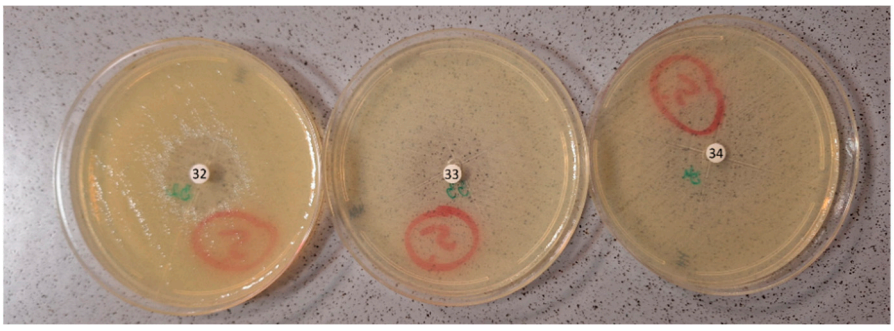
Camphor:Thymol



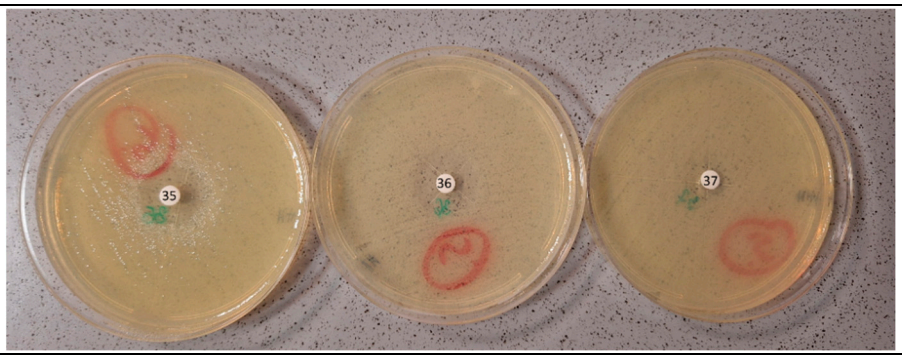
Camphor:DL-Menthol



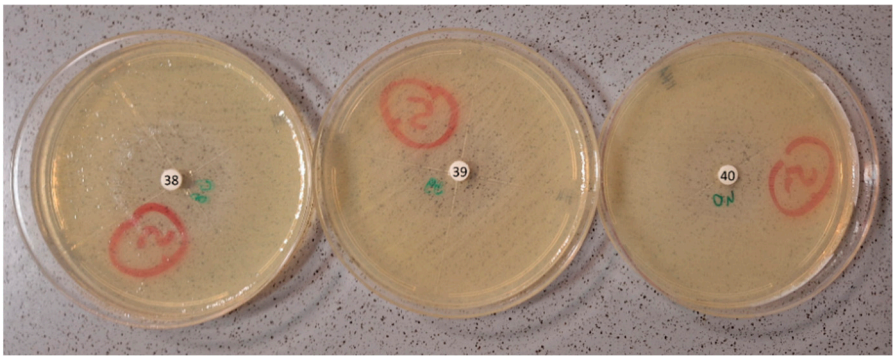
Benzyl alcohol:Thymol



Benzyl alcohol:DL-Menthol

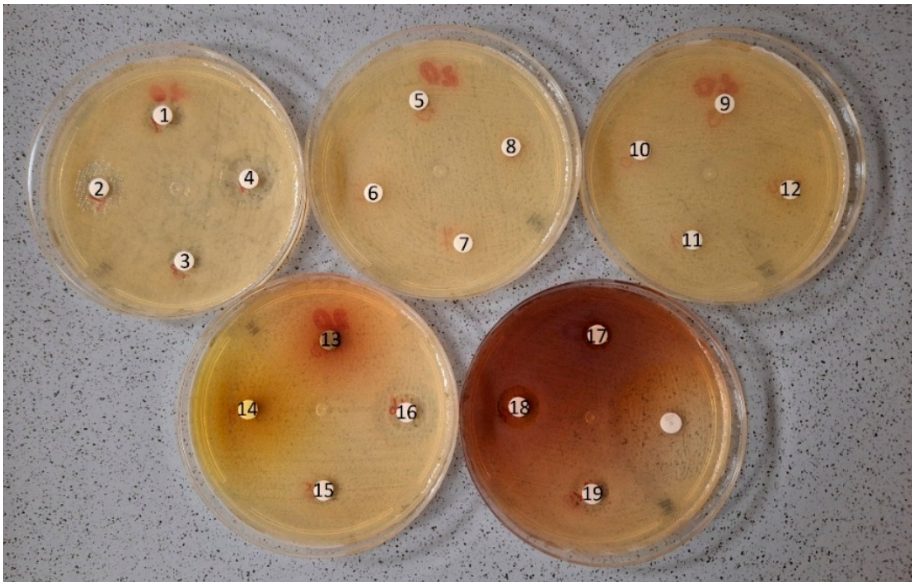


Borneol:Thymol



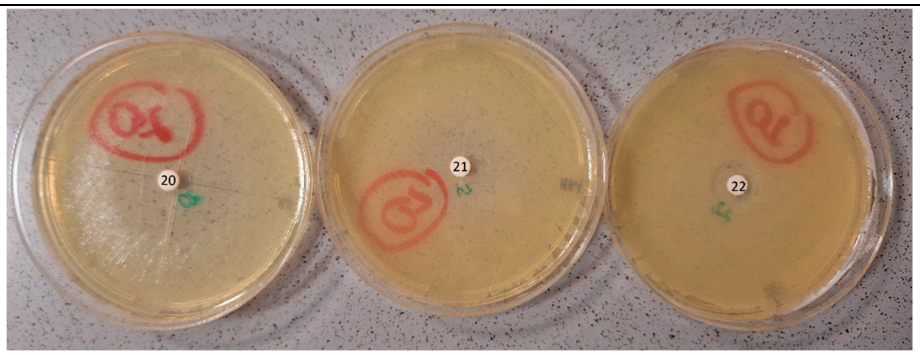
Escherichia coli ATCC 25922

Hydrophilic NADES with positive-control

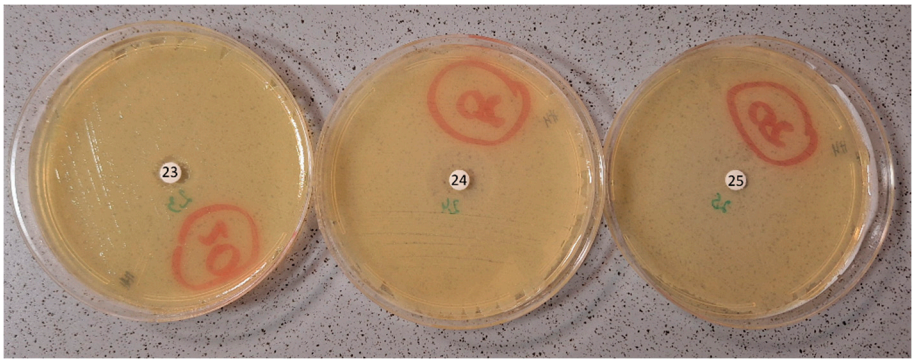


Lipophilic NADES

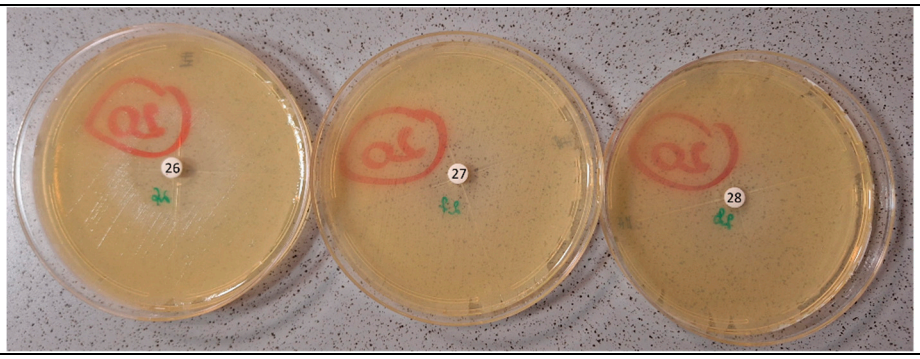
***1,8*-Cineole:Thymol**



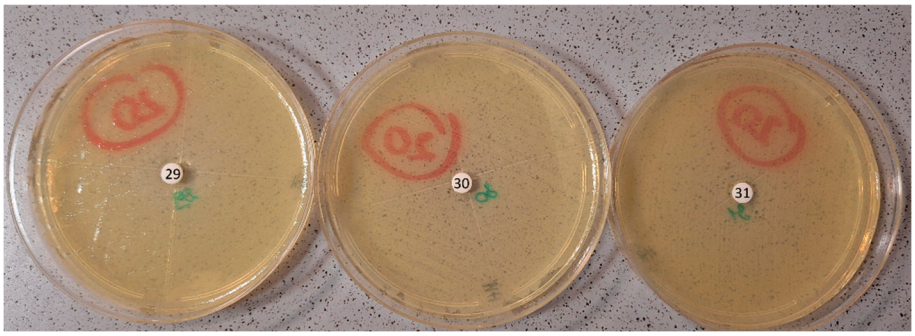
***1,8*-Cineole:DL-Menthol**



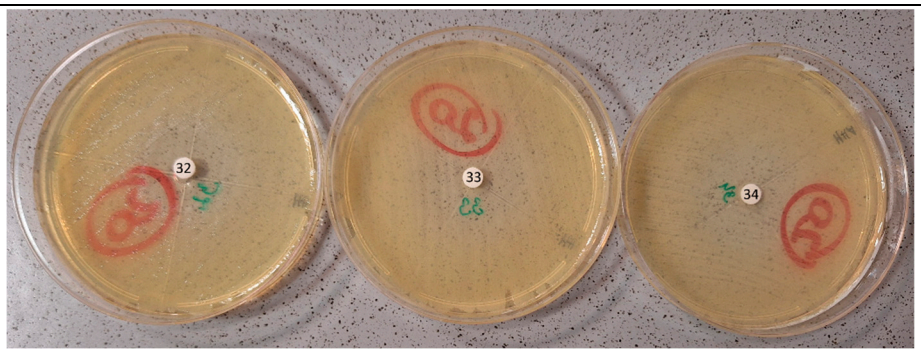
Camphor:Thymol



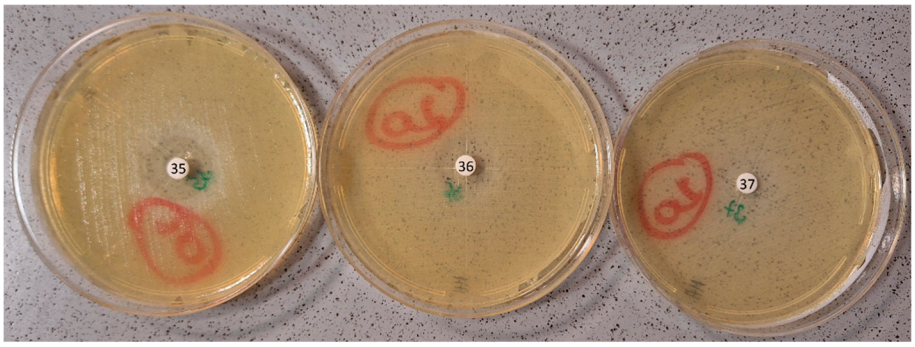
Camphor:DL-Menthol



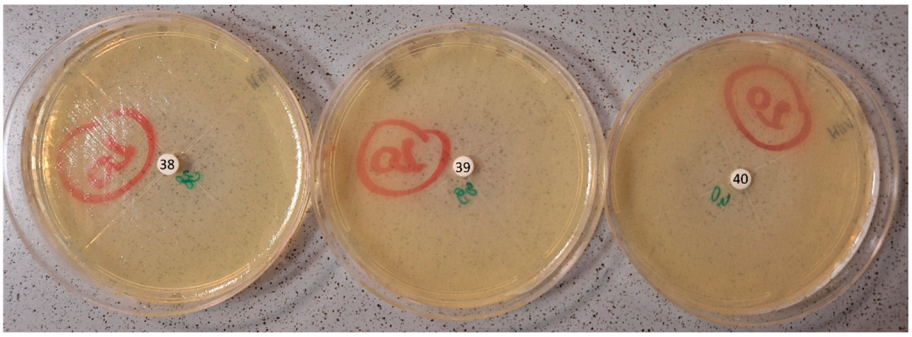
Benzyl alcohol:Thymol



Benzyl alcohol:DL-Menthol

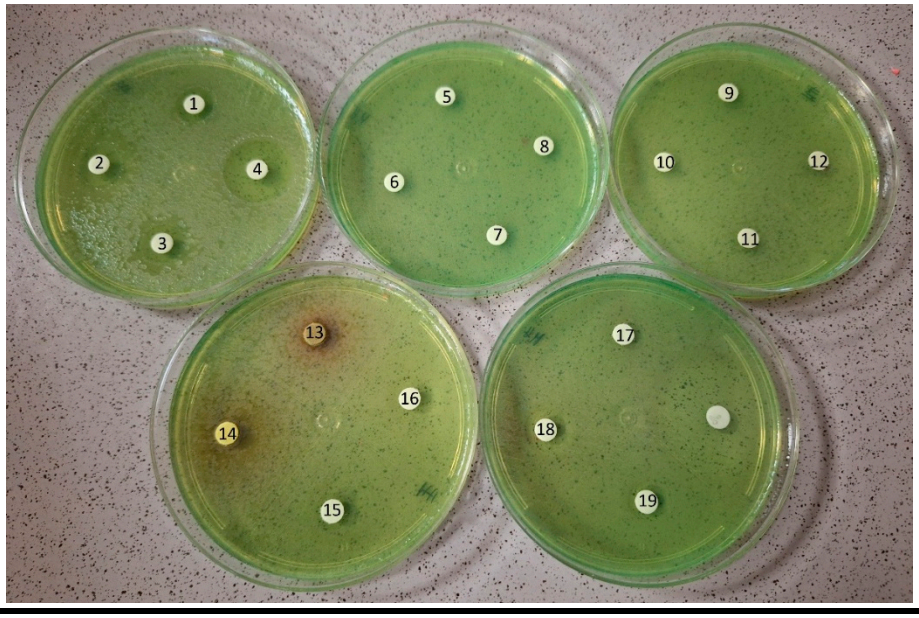


Borneol:Thymol



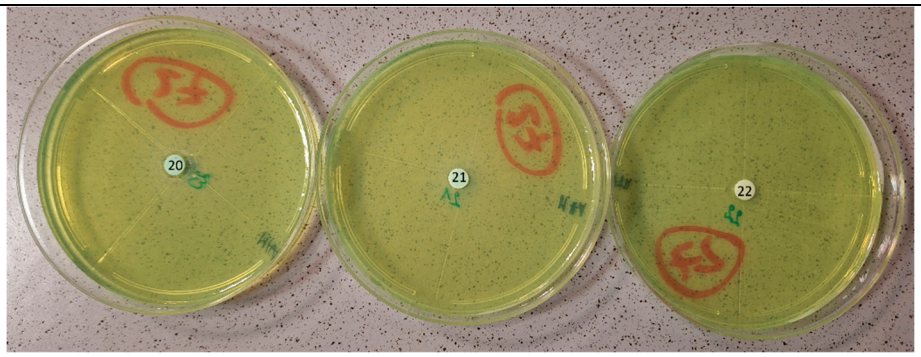
Pseudomonas aeruginosa ATCC 27853

Hydrophilic NADES with positive-control

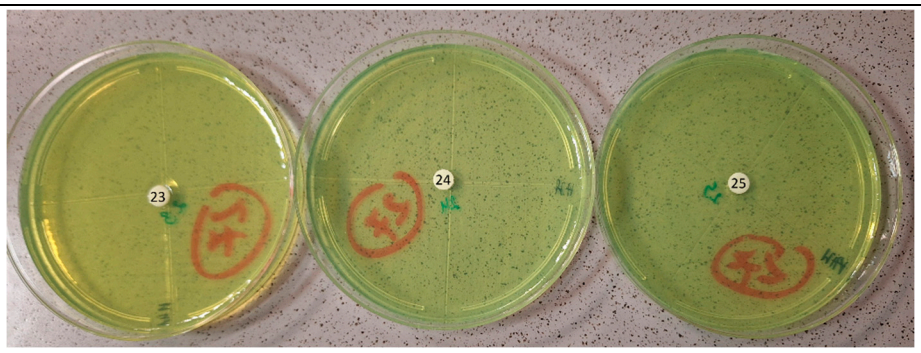


Lipophilic NADES

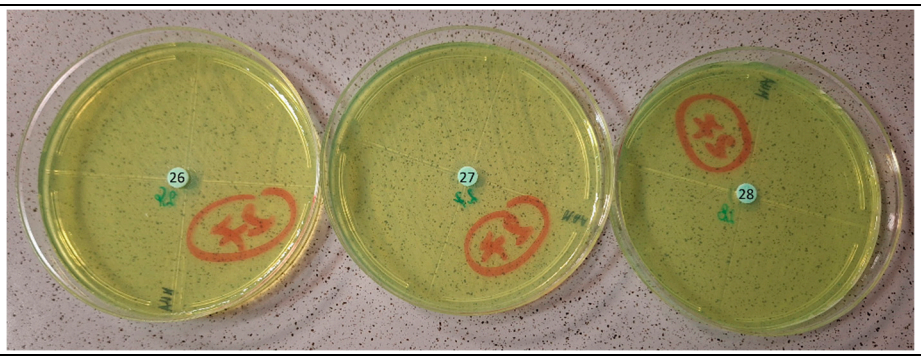
***1,8*-Cineole:Thymol**



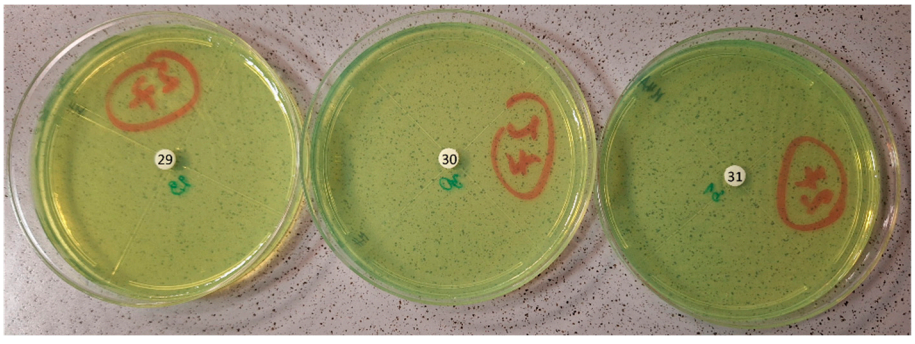
***1,8*-Cineole:DL-Menthol**



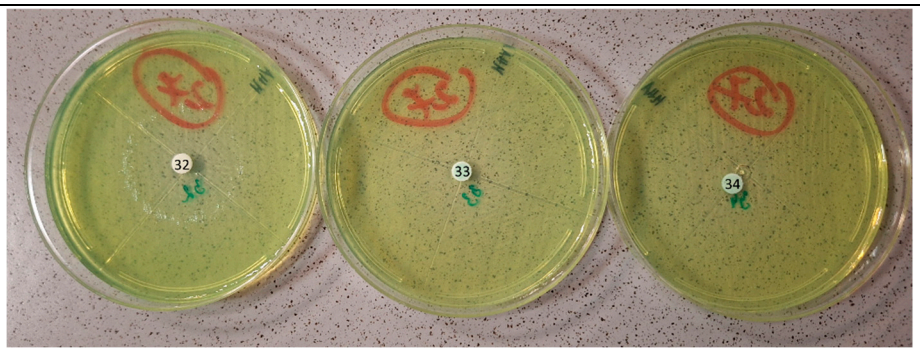
Camphor:Thymol



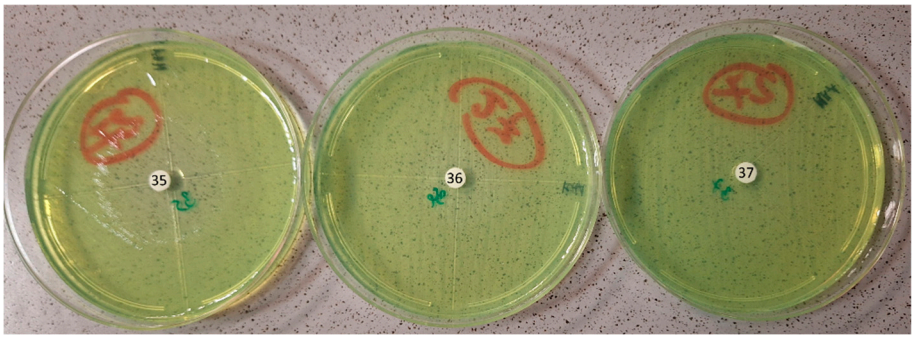
Camphor:DL-Menthol



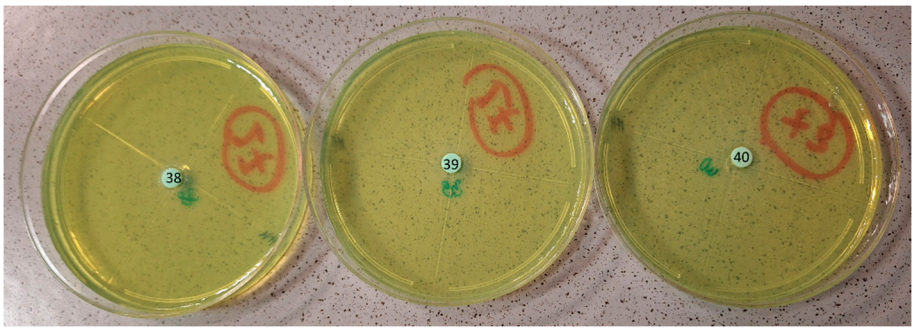
Benzyl alcohol:Thymol



Benzyl alcohol:DL-Menthol

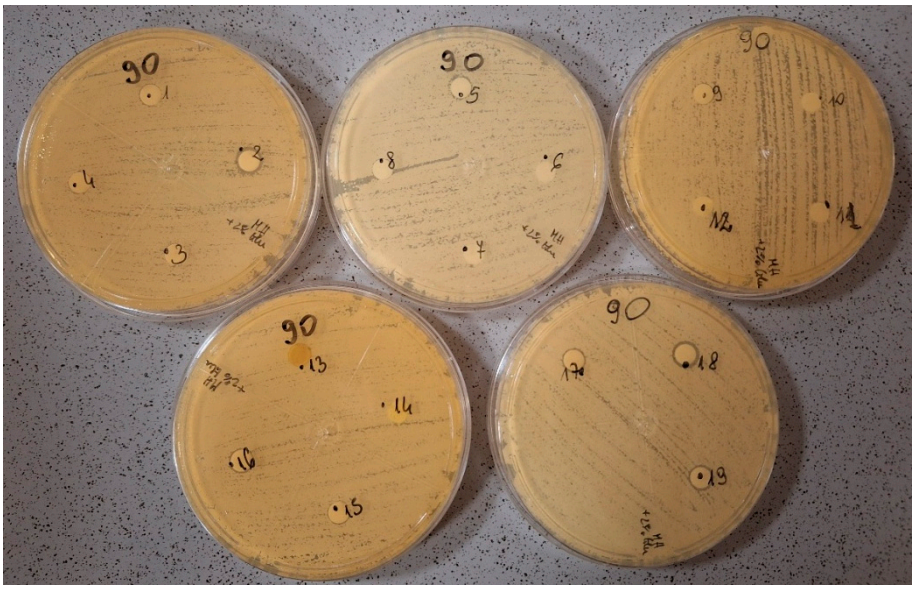


Borneol:Thymol

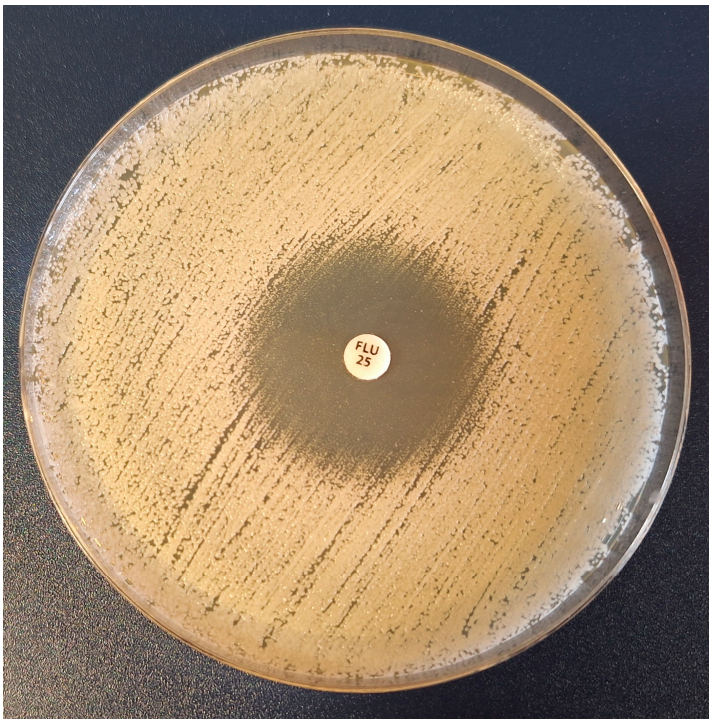


Candida auris CDC B11903

Hydrophilic NADES

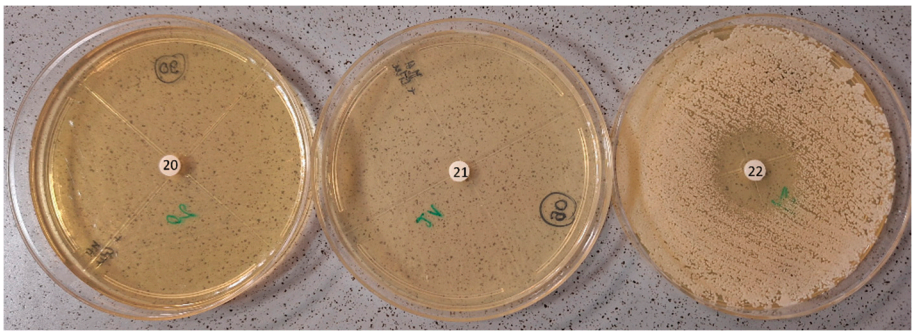


Positive control

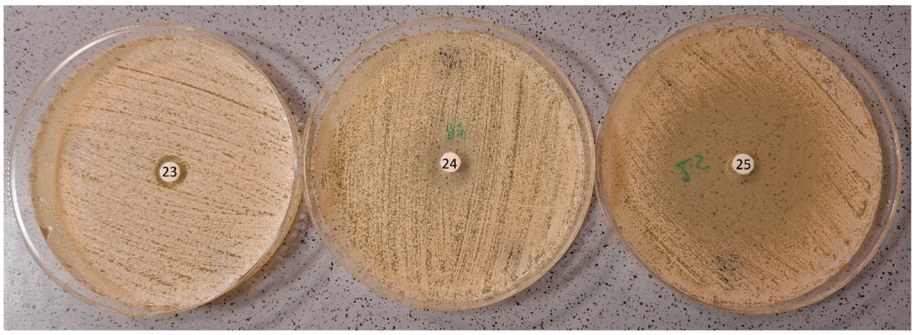


Lipophilic NADES

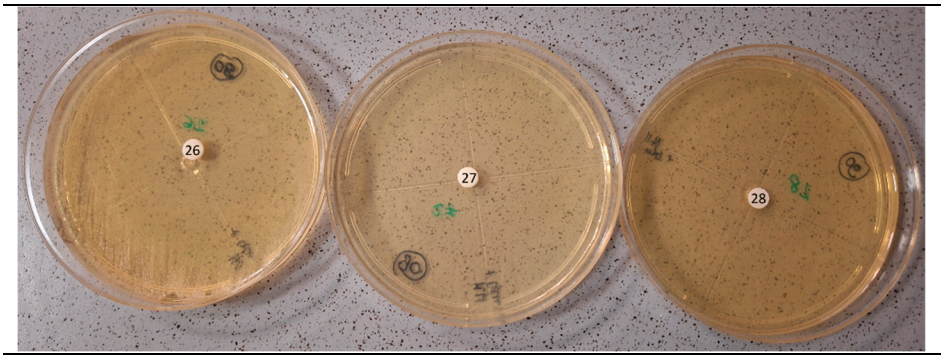
***1,8*-Cineole:Thymol**



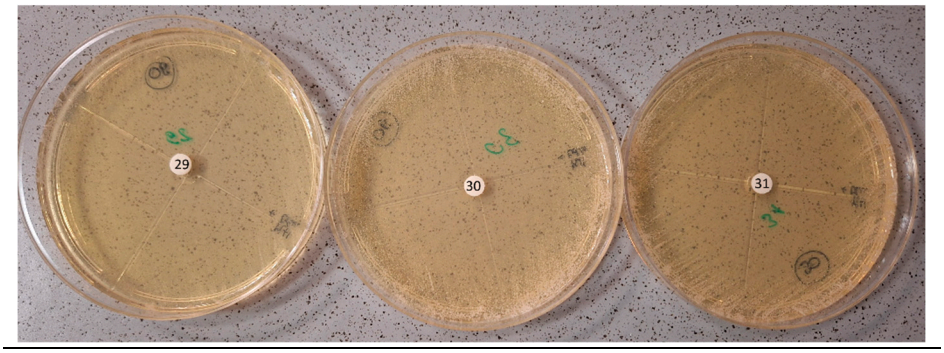
***1,8*-Cineole:DL-Menthol**



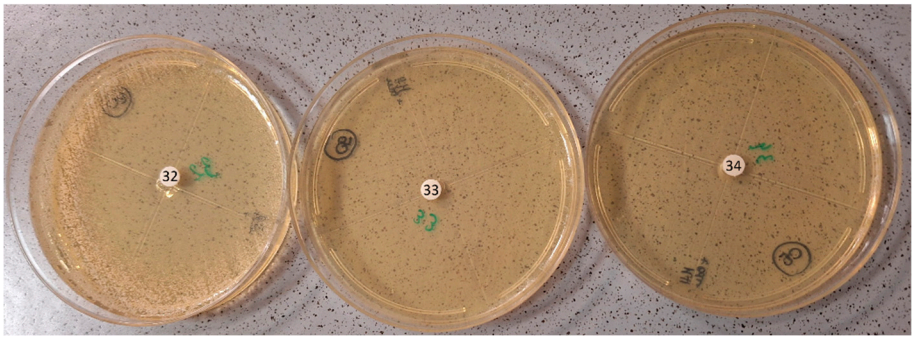
Camphor:Thymol



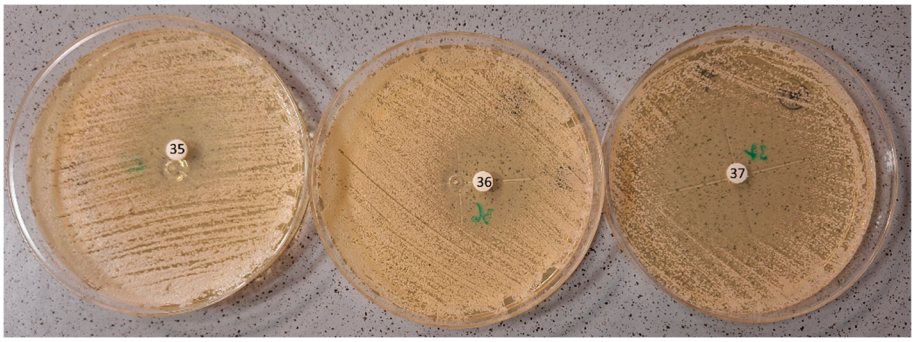
Camphor:DL-Menthol



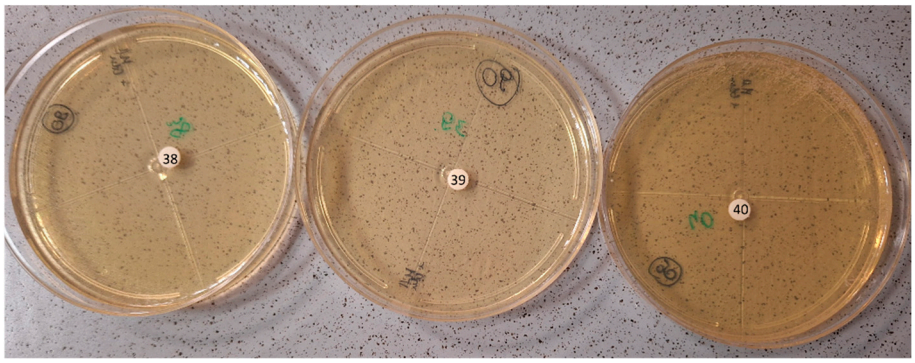
Benzyl alcohol:Thymol



Benzyl alcohol:DL-Menthol

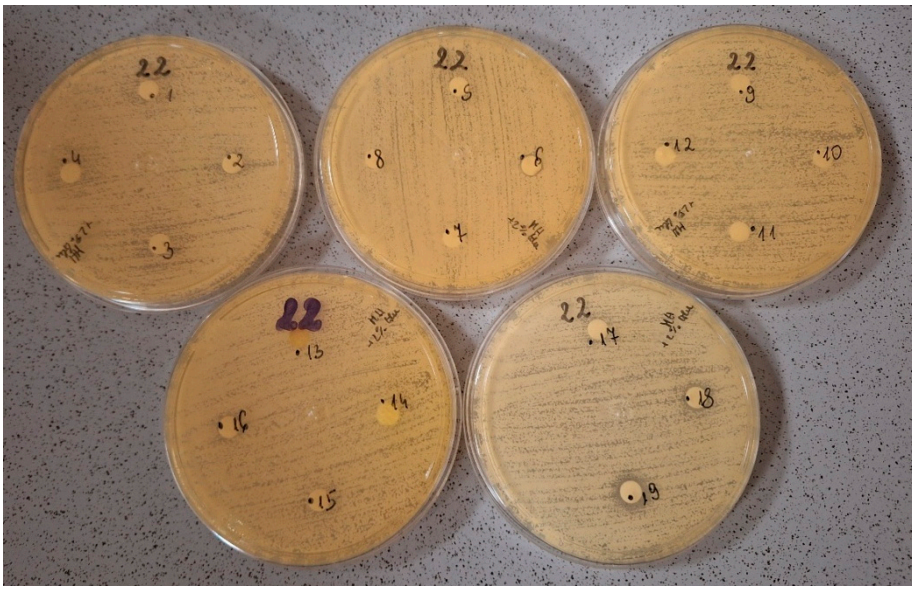


Borneol:Thymol

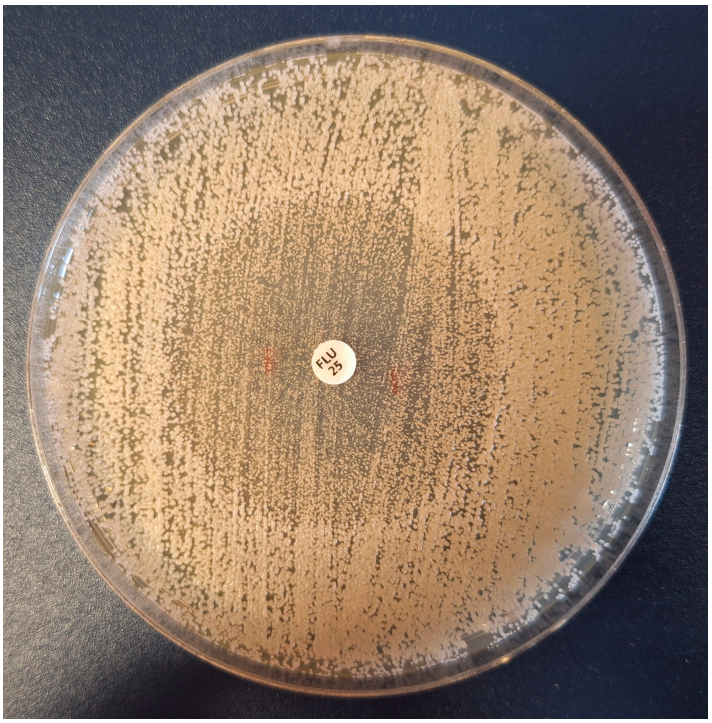


Candida albicans ATCC 10231

Hydrophilic NADES

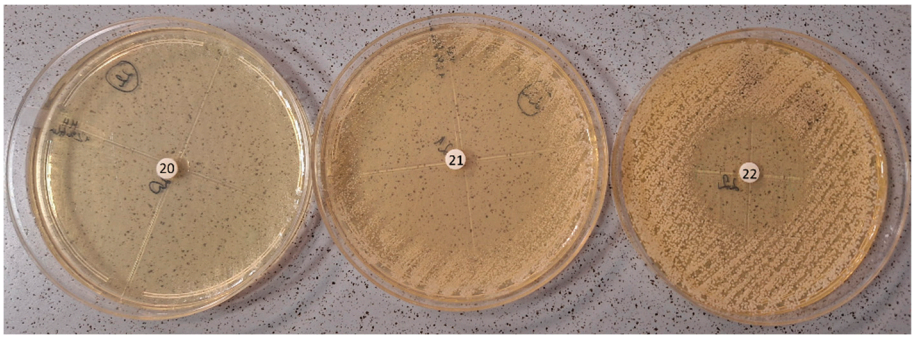


Positive control

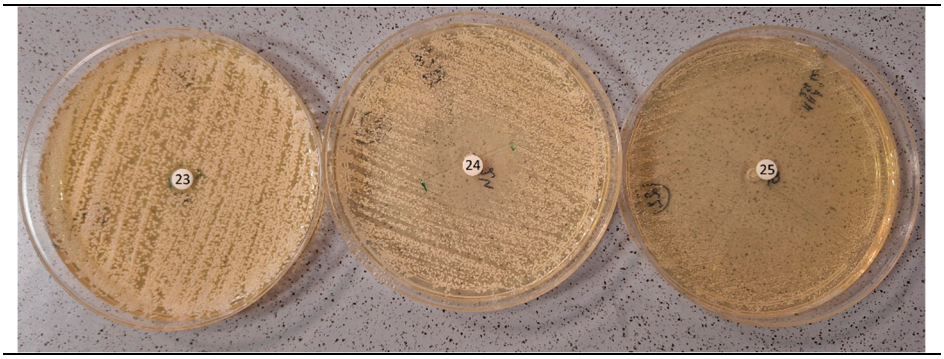


Lipophilic NADES

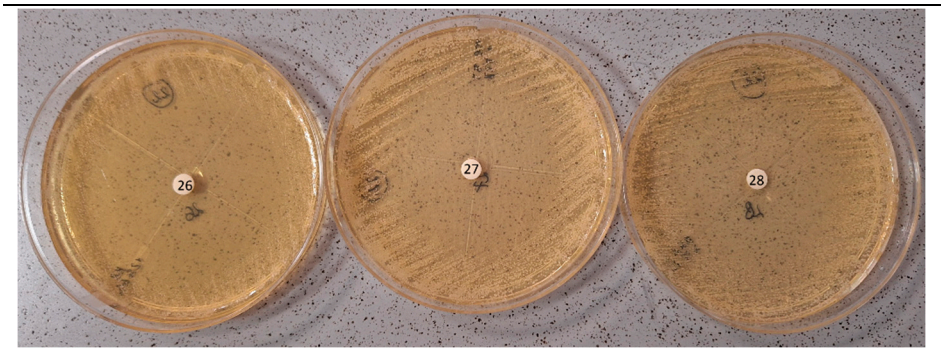
***1,8*-Cineole:Thymol**



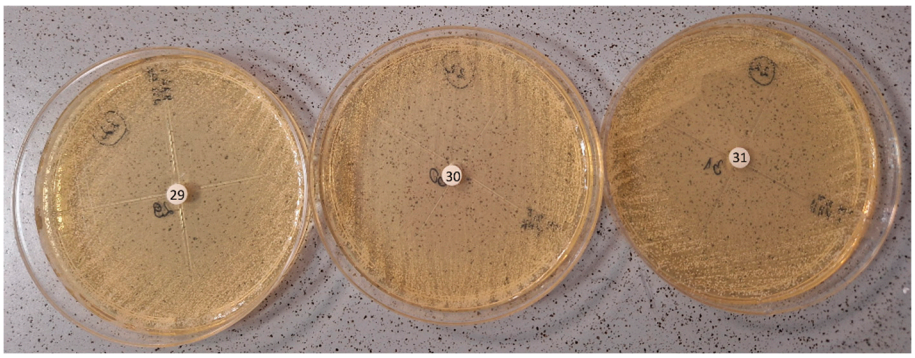
***1,8*-Cineole:DL-Menthol**



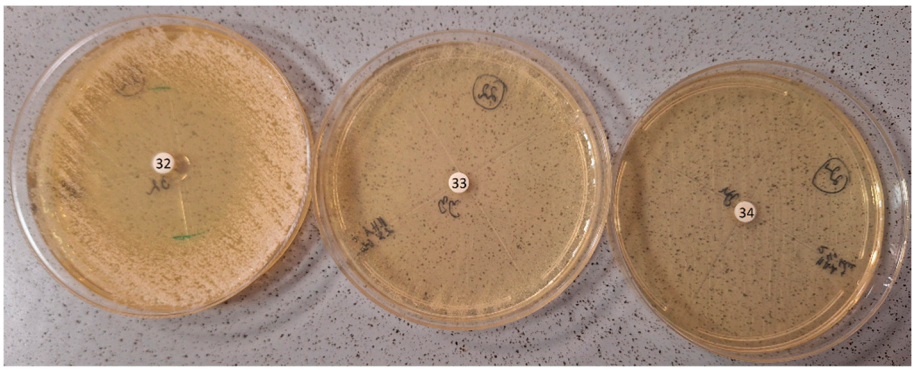
Camphor:Thymol



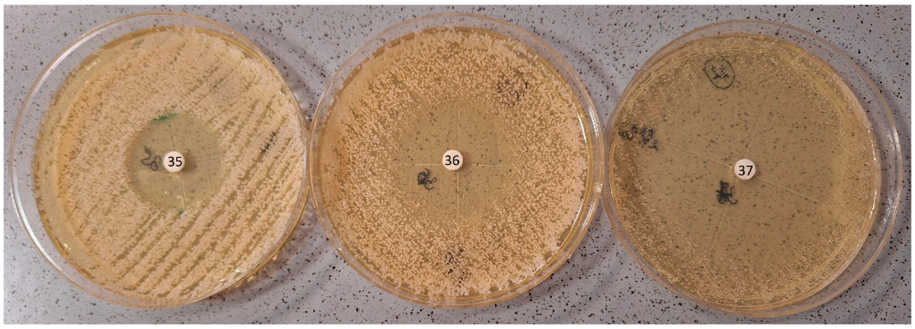
Camphor:DL-Menthol



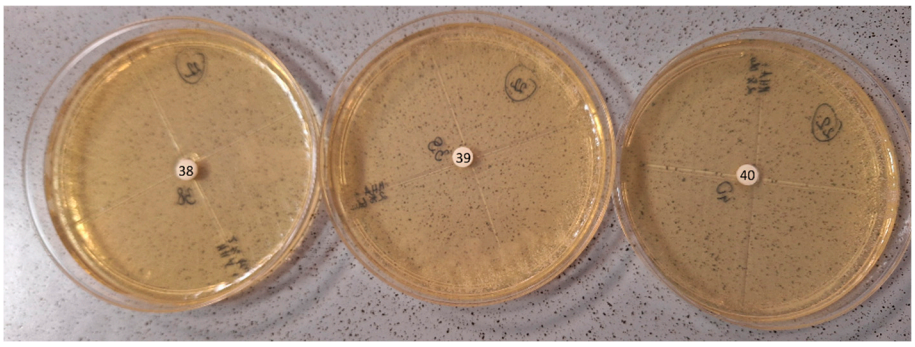
Benzyl alcohol:Thymol



Benzyl alcohol:DL-Menthol

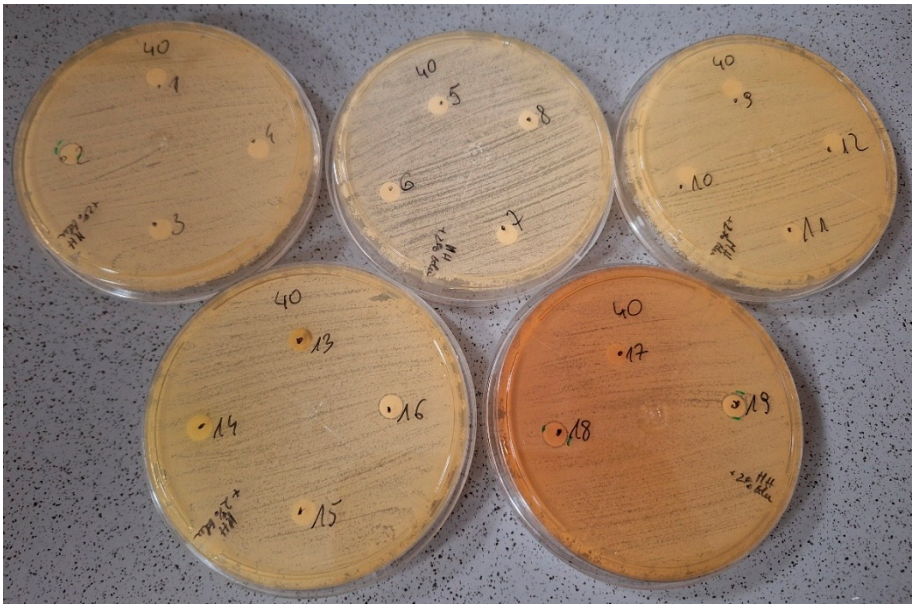


Borneol:Thymol

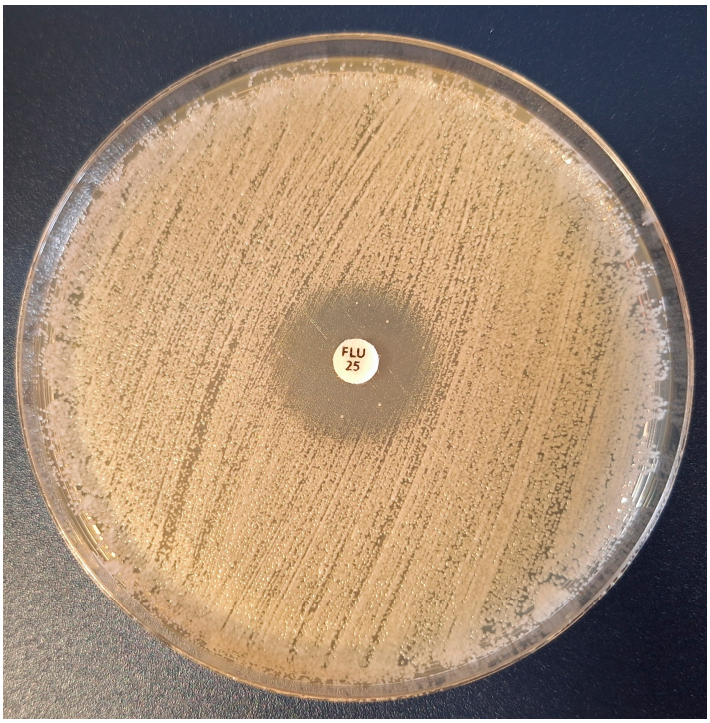


Candida glabrata ATCC 90030

Hydrophilic NADES

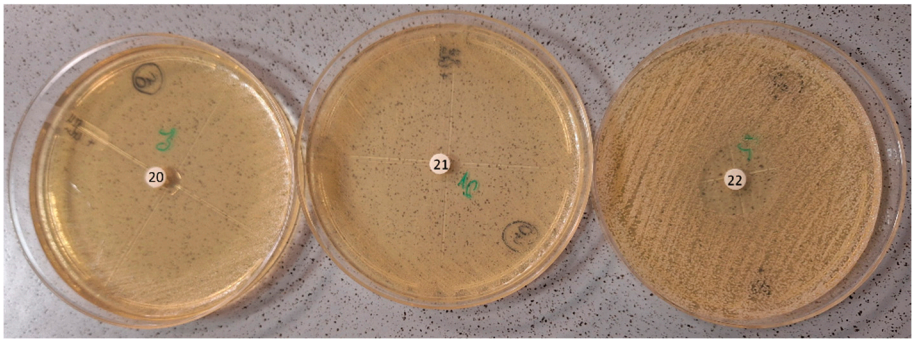


Positive control

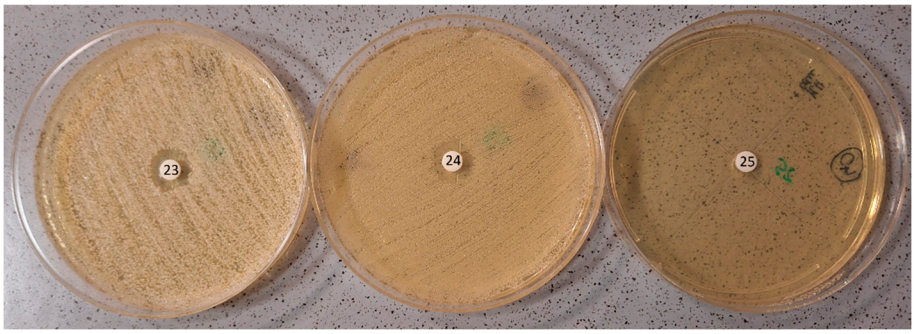


Lipophilic NADES

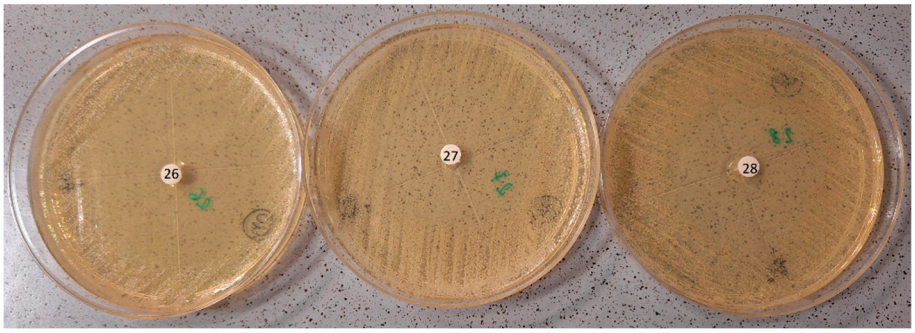
***1,8*-Cineole:Thymol**



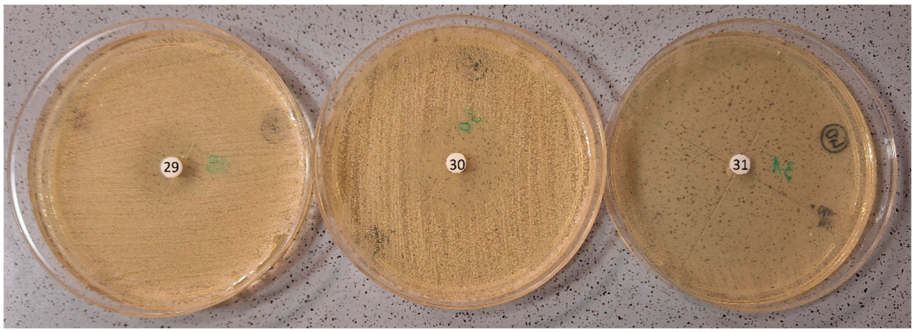
***1,8*-Cineole:DL-Menthol**



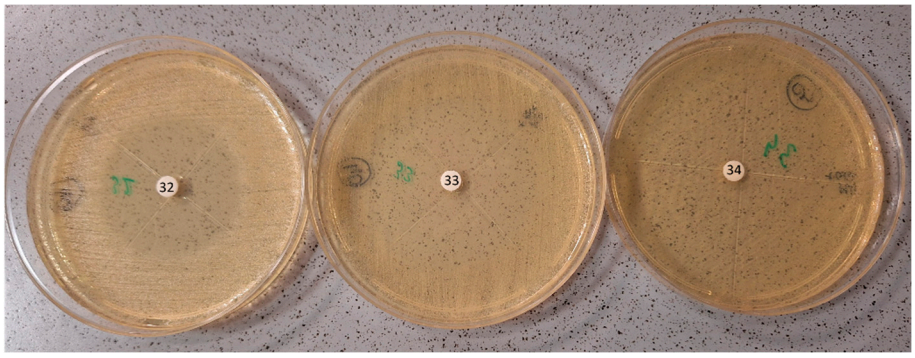
Camphor:Thymol



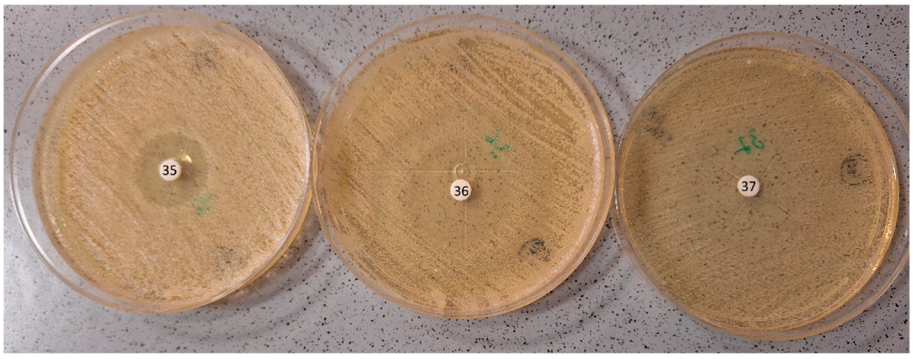
Camphor:DL-Menthol



Benzyl alcohol:Thymol



Benzyl alcohol:DL-Menthol



Borneol:Thymol

