Diffusion of linalool and methylchavicol from polyethylene-based antimicrobial packaging films

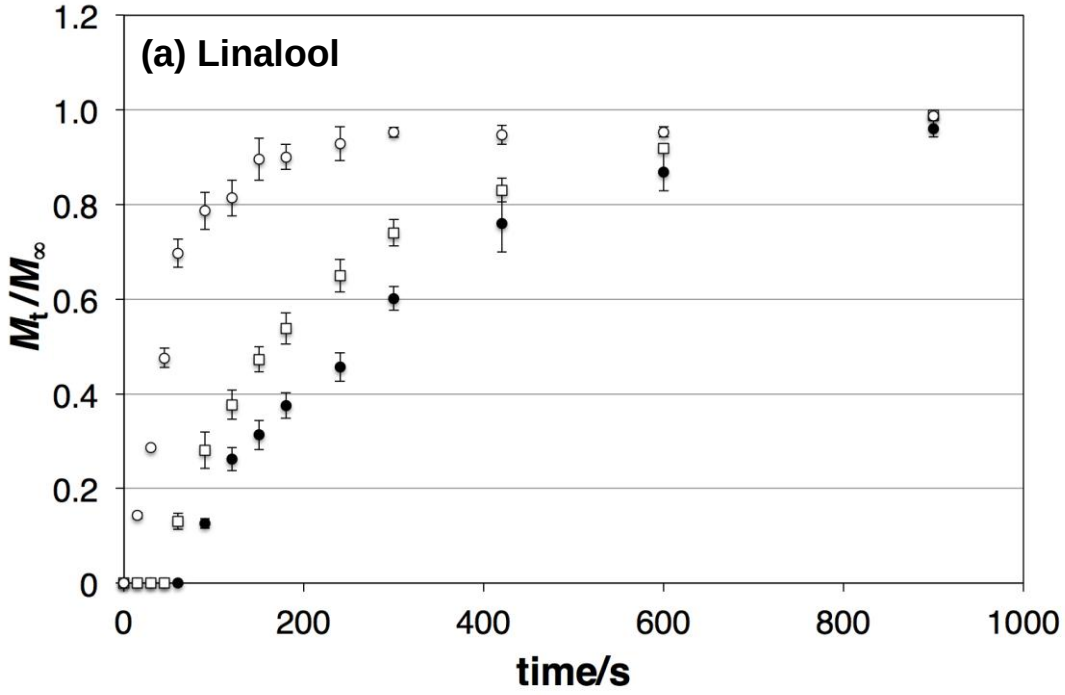
Figure Captions

Figure 1. Experimental data representing the release curves of: (a) linalool and (b) methylchavicol from LDPE-based films into isooctane at three different temperatures: 25°C (open circles), 10°C (open squares) and 4°C (filled circles). The bars represent one standard deviation.

Figure 2. Release curves of: (a) linalool and (b) methylchavicol from LDPE-based films into isooctane at 4°C. Continuous lines represent the sigmoidal fits to the experimental data using the time-response function with a Hill coefficient.

Figure 3. Arrhenius plots of linalool (filled circles) and methylchavicol (filled squares) incorporated in LDPE-based films where data were derived from: (a) half-time method equation and (b) time-response function with a Hill coefficient.

Figure 1


(a) Linalool
1.2
1.0
0.8
0.6
0.4
0.2
0
M_t/M_∞
0
200
400
600
800
1000
time/s

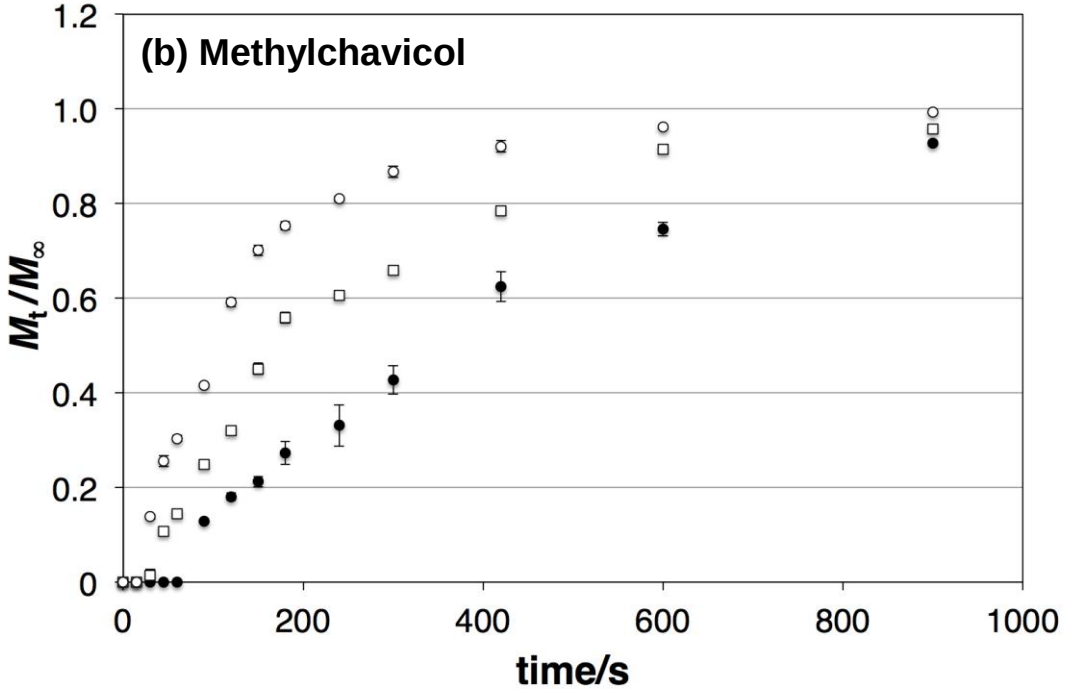
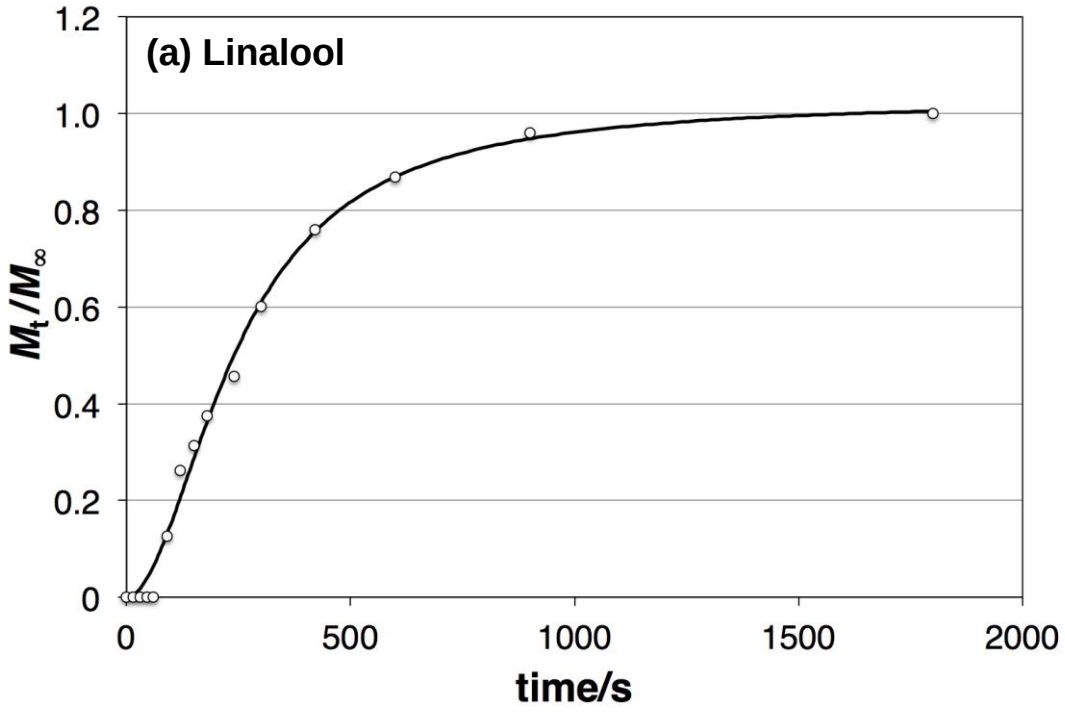

(b) Methylchavicol
1.2
1.0
0.8
0.6
0.4
0.2
0
M_t/M_∞
0
200
400
600
800
1000
time/s

Figure 2


(a) Linalool
1.2
1.0
0.8
0.6
0.4
0.2
0
M_t/M_∞
0
500
1000
1500
2000
time/s

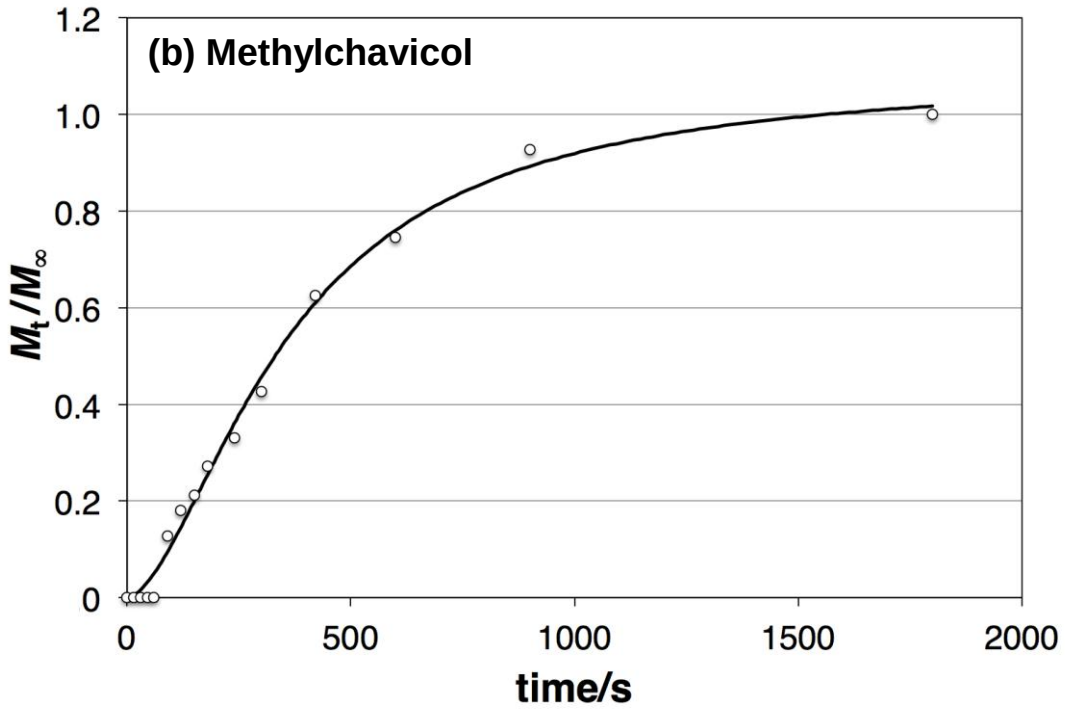
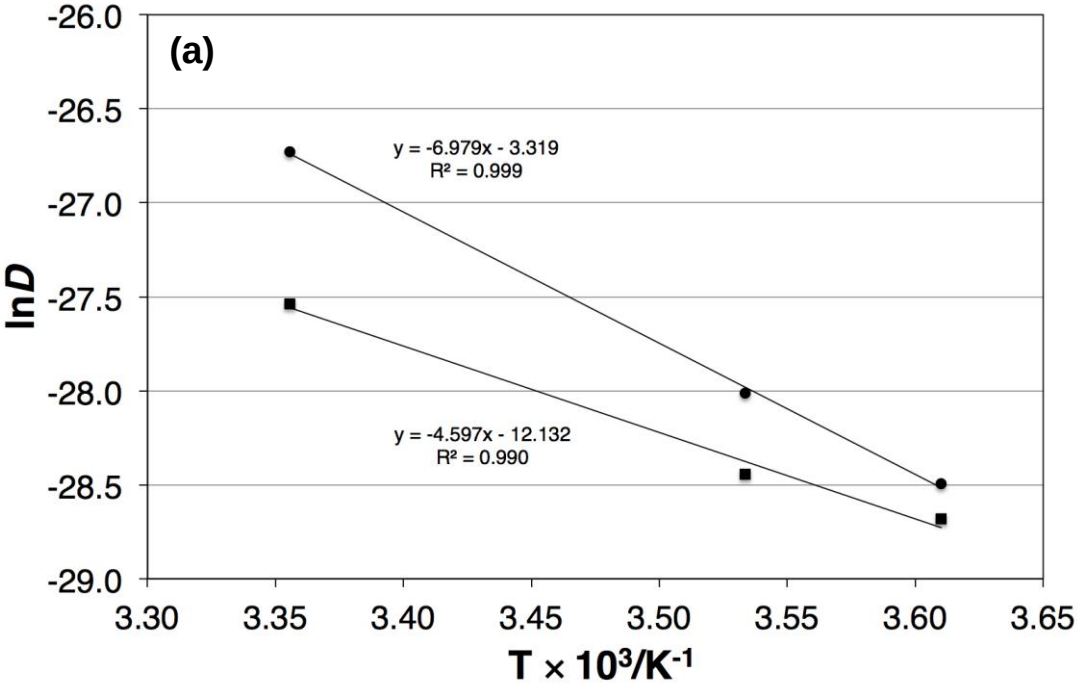
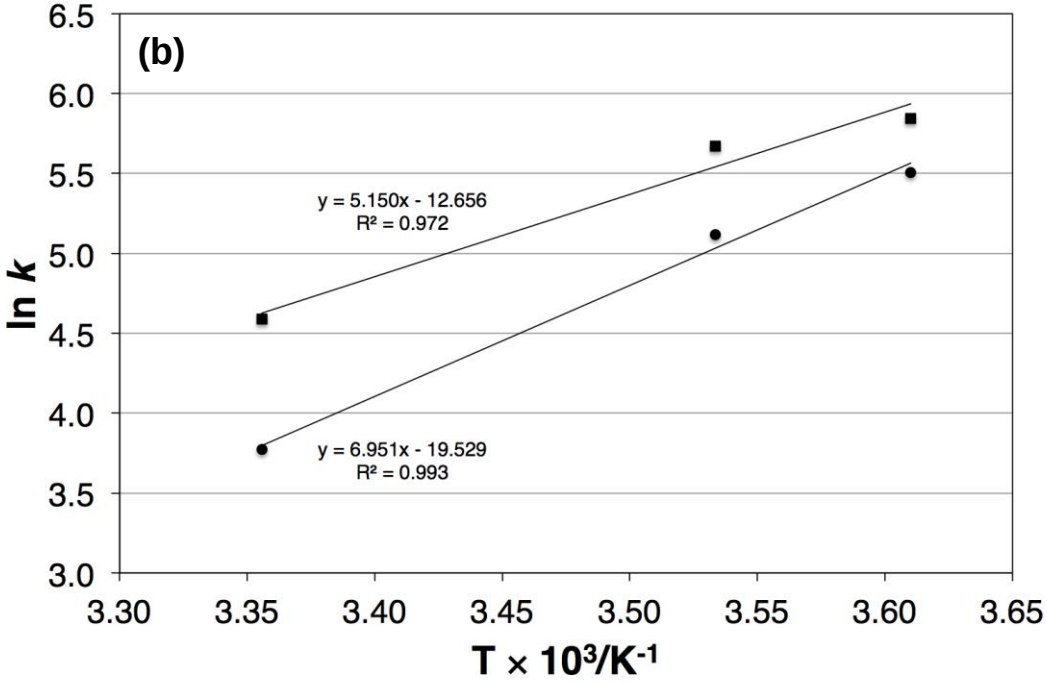

(b) Methylchavicol
1.2
1.0
0.8
0.6
0.4
0.2
0
M_t/M_∞
0
500
1000
1500
2000
time/s

Figure 3


(a)
y = -6.979x - 3.319
R² = 0.999
y = -4.597x - 12.132
R² = 0.990
ln D
T × 10³/K⁻¹


(b)
y = 5.150x - 12.656
R² = 0.972
y = 6.951x - 19.529
R² = 0.993
ln k
T × 10³/K⁻¹