

Electronic Supplementary Information (ESI)

Design and formulation of saponin based mustard oil derived extra stable oil-in-water emulsion: Exploration of its antimicrobial activity

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Supplementary Material: Tables

Table S1: After 1d, 30d ,60d, 90d the average droplet diameter of the five sets from M1 to M5

| Time | Average Droplets Diameter(μm) | | | | |
|------------|--|--------------|--------------|--------------|--------------|
| | M1 | M2 | M3 | M4 | M5 |
| After 1 d | 25 \pm 0.4 | 24 \pm 0.1 | 20 \pm 0.3 | 18 \pm 0.5 | 16 \pm 0.2 |
| After 30 d | 30 \pm 0.3 | 28 \pm 0.2 | 24 \pm 0.4 | 21 \pm 0.3 | 18 \pm 0.5 |
| After 60 d | 35 \pm 0.5 | 33 \pm 0.4 | 28 \pm 0.1 | 23 \pm 0.1 | 19 \pm 0.2 |
| After 90 d | 40 \pm 0.1 | 37 \pm 0.3 | 32 \pm 0.5 | 28 \pm 0.2 | 27 \pm 0.4 |

| Bacterial strains | Concentration of antibiotic used as positive control ($\mu\text{g/mL}$) | Zone of inhibition (mm in diameter) |
|-----------------------------------|---|-------------------------------------|
| <i>Escherichia coli</i> | 100 | 14.02 \pm 0.51 |
| <i>Staphylococcus epidermidis</i> | 100 | 13.15 \pm 0.15 |
| <i>Bacillus subtilis</i> | 100 | 20.25 \pm 0.28 |

Table S2: Activity of positive control (antibiotic) against bacteria

Table S3: Activity of saponin sample against bacteria

| Bacterial strains | Saponin sample | Volume of saponin sample given (μL) | Zone of inhibition (mm in diameter) |
|-----------------------------------|----------------|--|-------------------------------------|
| <i>Escherichia coli</i> | M1 | 50 | 0 |
| | M2 | 50 | 0 |
| | M3 | 50 | 0 |
| | M4 | 50 | 0 |
| | M5 | 50 | 0 |
| <i>Staphylococcus epidermidis</i> | M1 | 50 | 0 |
| | M2 | 50 | 0 |
| | M3 | 50 | 0 |
| | M4 | 50 | 0 |
| | M5 | 50 | 0 |
| <i>Bacillus subtilis</i> | M1 | 50 | 0 |
| | M2 | 50 | 0 |
| | M3 | 50 | 0 |
| | M4 | 50 | 0 |
| | M5 | 50 | 0 |

Supplementary Material: Figures

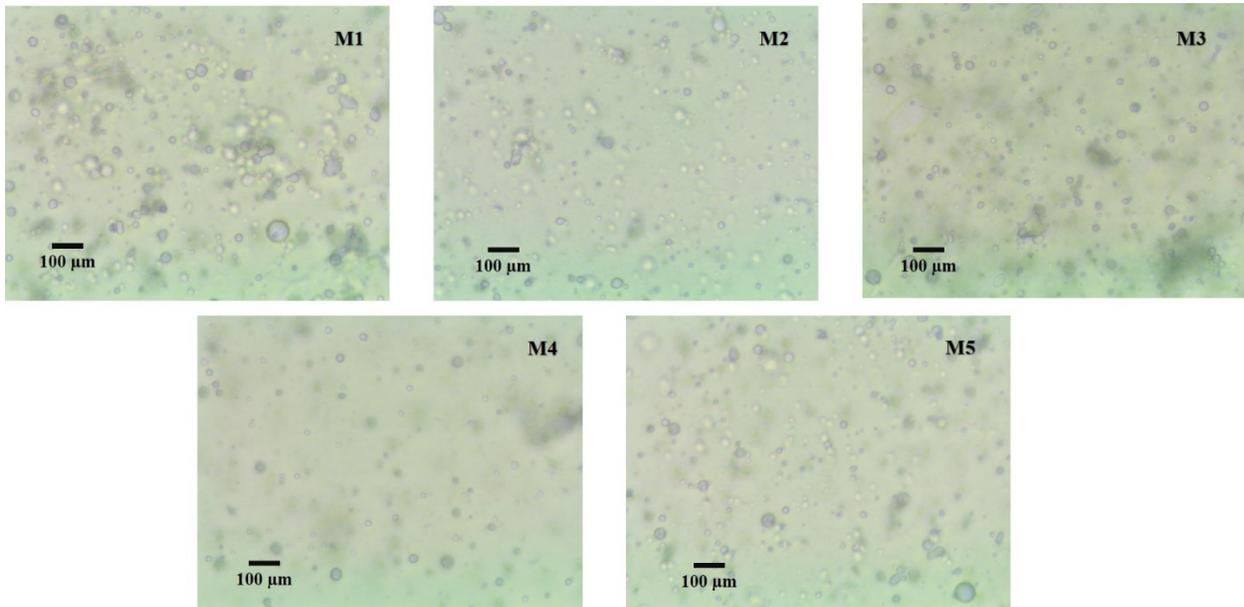


Fig S1: optical microscopic images for after 1 d of settling for M1 to M5.

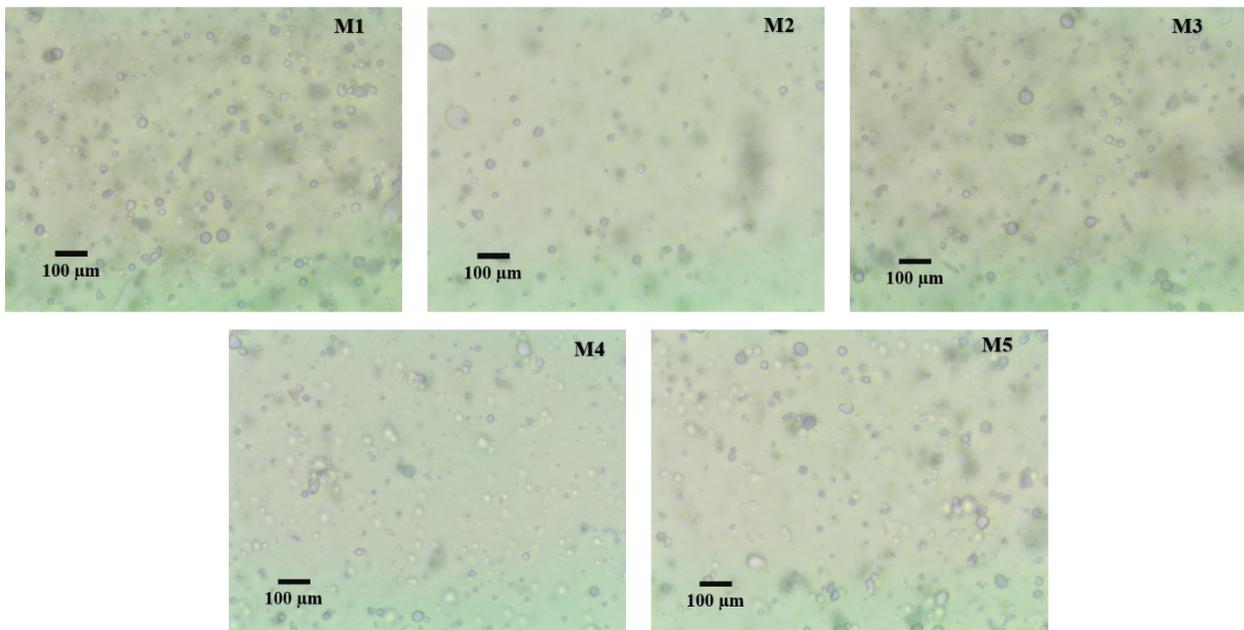


Fig S2: optical microscopic images for after 60 d of settling for M1 to M5.

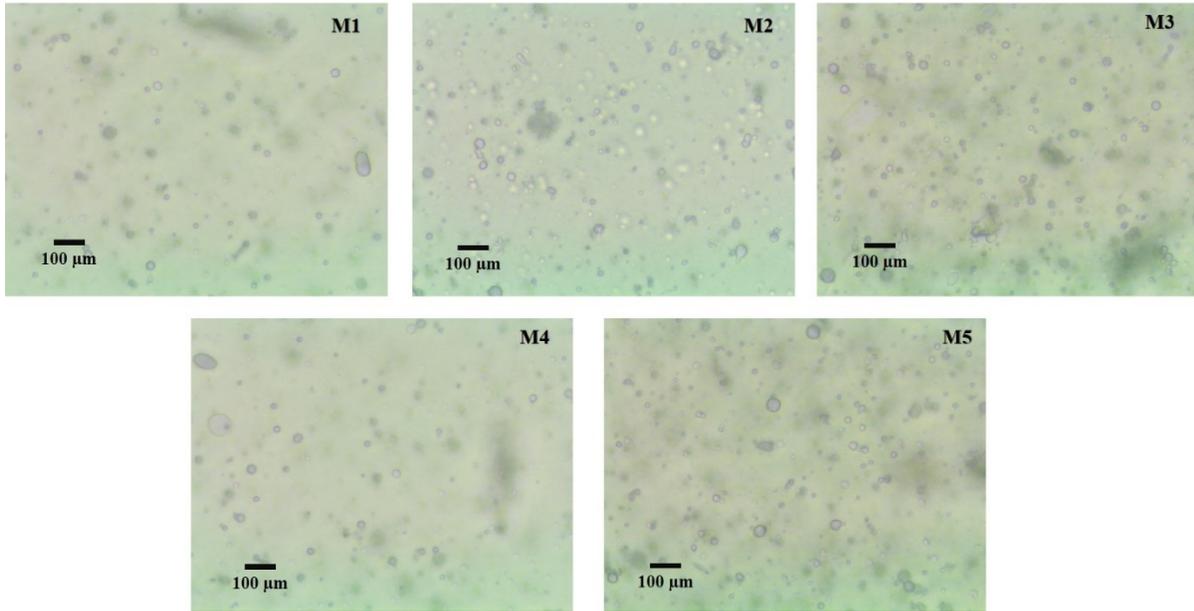


Fig S3: optical microscopic images for after 90 d of settling for M1 to M5.

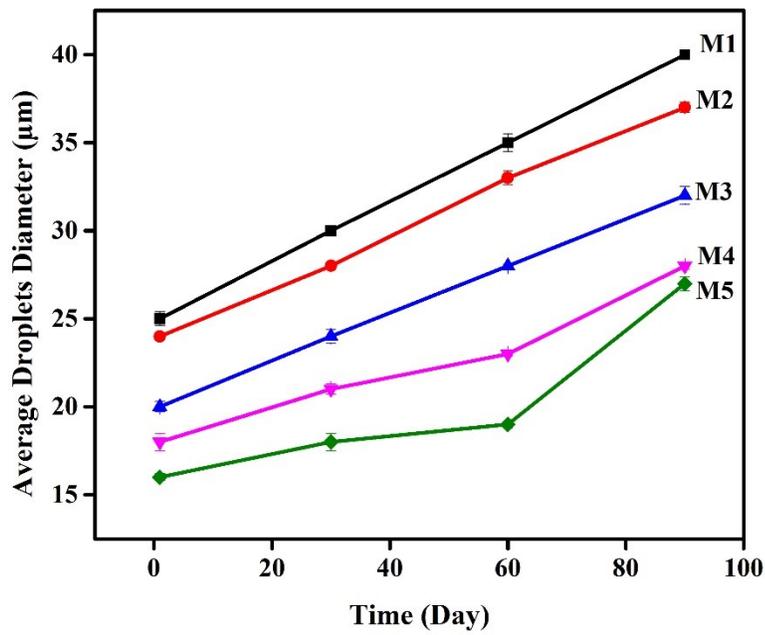


Fig S4: Variation of the droplet diameter of five O/W emulsion sets (M1-M5) after different time of standings.