

## Testing of glyceryl monoesters for their antimicrobial susceptibility and their influence in emulsions.

### ABSTRACT

Natural anti-microbial agents have received great attention in the cosmetic preservation area due to their well-documented safety profile. The anti-microbial activities of palm-based glyceryl monoesters (monolaurin, monocaprylin and monocaprin) were compared with commercially available tea tree oil and potassium sorbate against *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Aspergillus niger*, using the anti-microbial susceptibility testing procedure. Monolaurin was found to exhibit excellent inhibitory activity against *S. aureus* and *Asp. niger*, whereas potassium sorbate and tea tree oil had no activity against *Asp. niger* and *S. aureus*, respectively. Monocaprylin was shown to have low inhibitory activity against *E. coli*, and no inhibitory activity towards *P. aeruginosa*. On the other hand, tea tree oil had a higher inhibitory activity than monolaurin at 2% against *E. coli* but showed no activity against *P. aeruginosa*. Similar trends were observed for monocaprin and monolaurin which showed no anti-microbial activity towards *P. aeruginosa* as well as *E. coli*. Interestingly, the presence of monolaurin was not only effective as a preservative, but was also found to induce the formation of liquid crystals at concentrations as low as 0.5%. The formation of liquid crystals is said to enhance the stability and functionality of cosmetic emulsions.

**Keyword:** Monolaurin; Monocaprin; Monocaprylin; Anti-microbial activity; Liquid crystals.