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Thermomechanical and transport properties of LLDPE films impregnated with clove essential oil by high-pressure CO_2

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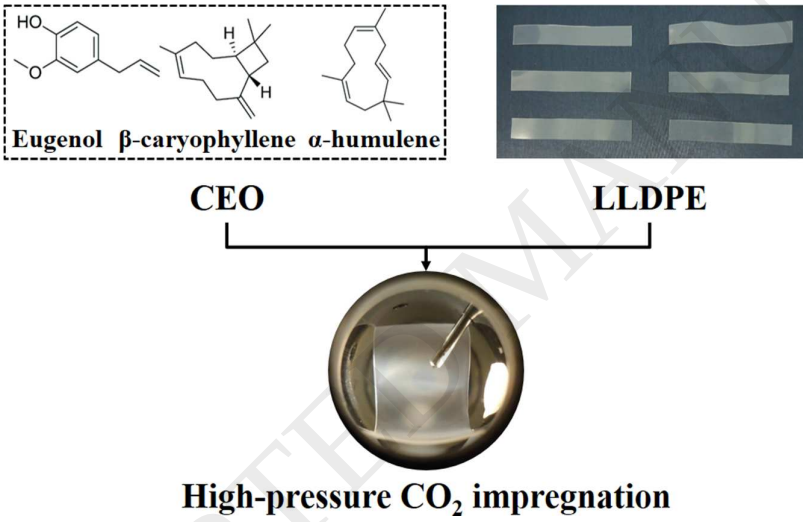
Graphical abstract



HIGHLIGHTS

- High-pressure CO_2 impregnation is suitable to incorporate CEO in LLDPE.
- Slow depressurization rate promotes high active compound impregnation.
- Diffusion governs CEO migration from LLDPE to food simulant fluids.
- Processing parameters exert no significant effect over the active agent diffusivity.
- CEO-impregnated LLDPE films are promising materials for active food packaging.