

**Title** Scalping of four aroma compounds by one common (LDPE) and one biosourced (PLA) packaging materials during high pressure treatments

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### **Abstract**

The impact of high pressure thermal (HP/T) treatments on scalping of four aroma compounds (2-hexanone, ethyl butanoate, ethyl hexanoate, d-limonene) was assessed for low density polyethylene (LDPE) and polylactate (PLA). Two HP/T treatments intending to perform a pasteurization (800 MPa, 40 °C) and a sterilization (800 MPa, 115 °C) were carried out on film samples in contact with four food simulating liquids (water, acidic, alcoholic and fatty) enriched with aroma compounds.

The aroma compounds tested were found rather stable after the HP/T pasteurization while significant losses were found after HP/T sterilization as expected. Regarding the scalping, both materials appeared as suitable for HP/T pasteurization. On the contrary LDPE melted during the conventional sterilization whereas it withstood the HP/T sterilization (and showed a significant increase of the uptake of aroma compounds). For scalping in PLA, temperature turned out to be a critical factor, especially if the temperature of the treatment goes over its glass transition temperature.