

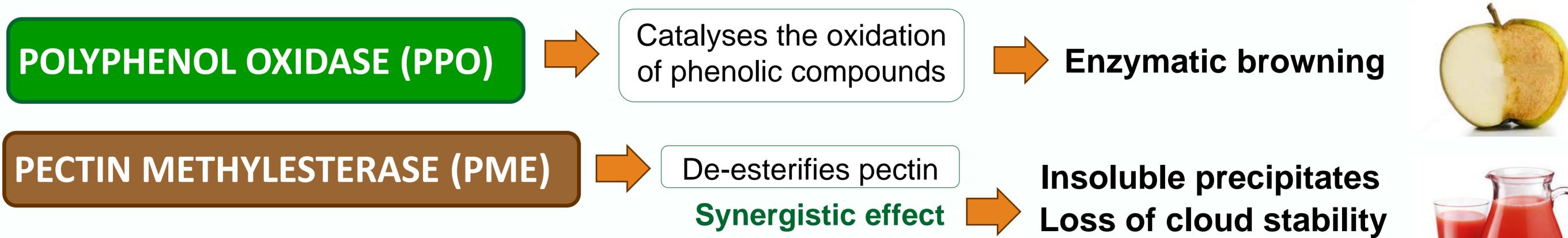


ENZYMATIC INACTIVATION OF APPLE AND TOMATO JUICES USING HPCD (HIGH PRESSURE **CARBON DIOXIDE) TECHNOLOGY AND ITS EFFECT** ON THE QUALITY PARAMETERS OF THE JUICE

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Enzymes of interest in apple and tomato juices



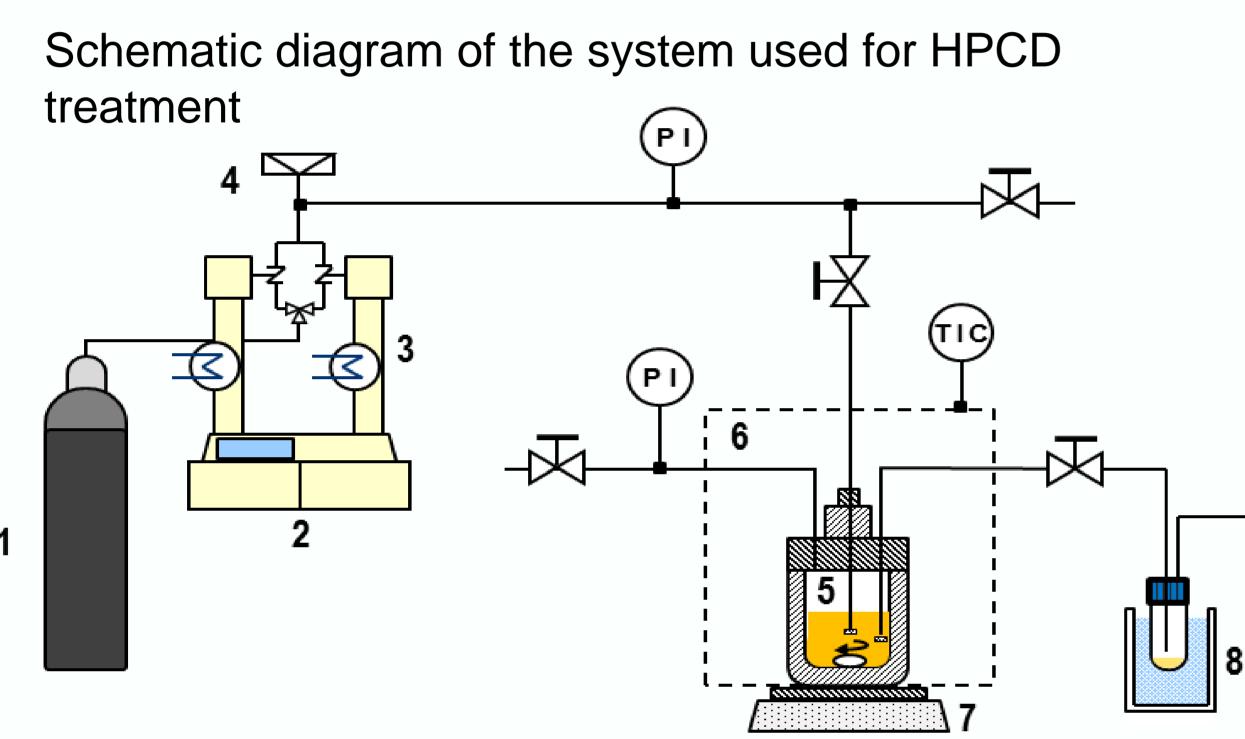
POLYGALACTURONASE (PG)

Hydrolytes α -D-(1-4) glycosidic bonds in pectin





Enzymatic inactivation through HPCD



1: CO_2 supply 2: Syringe pump and controller 3: Cooling system 4: Rupture disc 5: High pressure vessel 6: Thermostatic bath 7: Magnetic stirrer 8: Sampling system **Treatment conditions** 8 - 30 (MPa) T (°C) 20 - 45

An alternative to heat treatment

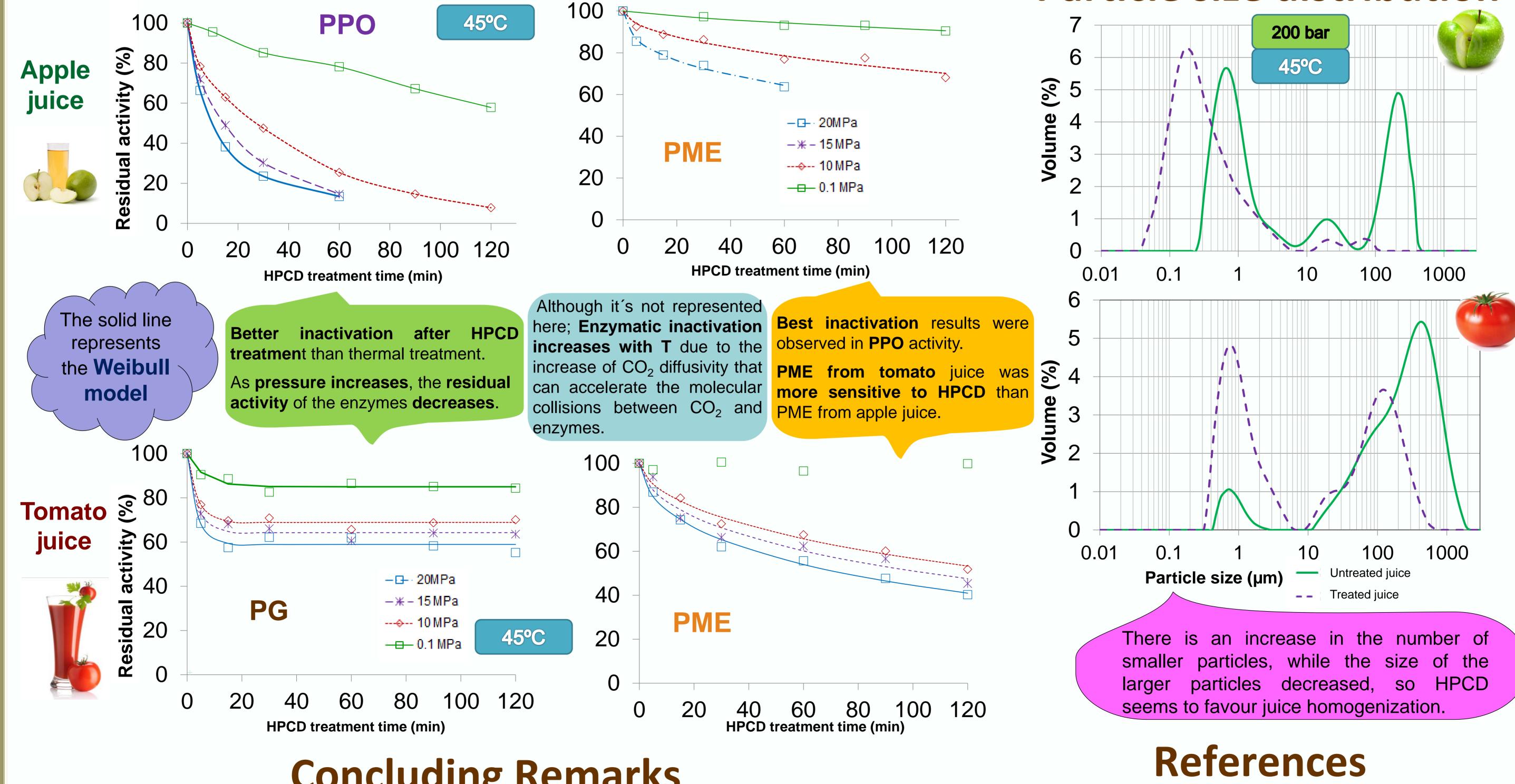
HPCD TECHNOLOGY (High Pressure Carbon Dioxide)

Is SC-CO₂ a green solvent?

- Nontoxic
- Nonflammable
- Readily available \checkmark
- Easy to remove from product
- Renewable
- Recovered as a by-product

Residual activity of the enzymes

Particle size distribution



Concluding Remarks

- **HPCD** technology is a **clean alternative** to traditional heat treatments, and CO₂ can be considered a green solvent.
- This technology has demonstrated the potential of inactivating the main enzymes responsible for the deterioration of apple and tomato juice.
- HPCD is also capable of favouring the homogenization of the product, achieving a product of higher quality and better visual appearance, which presents greater appeal to the consumer.

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ACKNOWLEDGEMENTS:



To MINECO and ERDF for financial support of AEI's contract through project CTQ2015-64396-R To JCyL and ERDF for financial support of project BU055U16 and O.Benito-Román's Post-doctoral contract To MINECO for RM's pre-doctoral contract (BES-2013-063937)





EUROPEAN REGIONAL DEVELOPMENT FUND