Beyond a specific temperature and pressure (the critical point), CO₂ becomes a supercritical fluid, a state that is neither a gas nor a liquid, but has properties of both. Supercritical CO₂ (Sc-CO₂) has many advantages (environmentally friendlier and safer, non-flammable…) and constitutes an interesting alternative to the organic solvents. Since there are many examples in literature of carbohydrates esterification catalyzed by lipases in organic medium, few reports describe the enzymatic synthesis of sugars in Sc-CO₂. So the aim of this work is to develop the synthesis of sugars esters catalyzed by lipases in Sc-CO₂.

Acknowledgments: This preliminary study allowed us to assess the influence of various parameters such as solubility of acids in Sc-CO₂ and effect of Sc-CO₂ on D-Mannose and CALB. The enzymatic synthesis of sugar esters in Sc-CO₂ seems to be a promising approach but other factors still need to be evaluated (influence of water in medium, pressure, temperature…) in order to favour esterification reaction in such media.

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Conclusions
This preliminary study allowed us to assess the influence of various parameters such as solubility of acids in Sc-CO₂ and effect of Sc-CO₂ on D-Mannose and CALB. The enzymatic synthesis of sugar esters in Sc-CO₂ seems to be a promising approach but other factors still need to be evaluated (influence of water in medium, pressure, temperature…) in order to favour esterification reaction in such media.