AVOCADO PEEL: POTENTIAL APPLICATIONS TO PROMOTE CIRCULARITY BASED ON ITS CHARACTERIZATION

Luis Carlos Morán[1], María del Mar Contreras[1,2], Ángel Galán-Martín[1,2], Eulogio Castro[1,2]

[1] Dept. Chemical, Environmental and Materials Engineering, Universidad de Jaén, Campus Las Lagunillas, 23071, Jaén, Spain

[2] Center for Advanced Studies in Earth Sciences, Energy and Environment (CEACTEMA), Universidad de Jaén, Campus Las Lagunillas, 23071, Jaén, Spain.

Corresponding author: lmoran@ujaen.es; mcgamez@ujaen.es

Universidad de Jaén

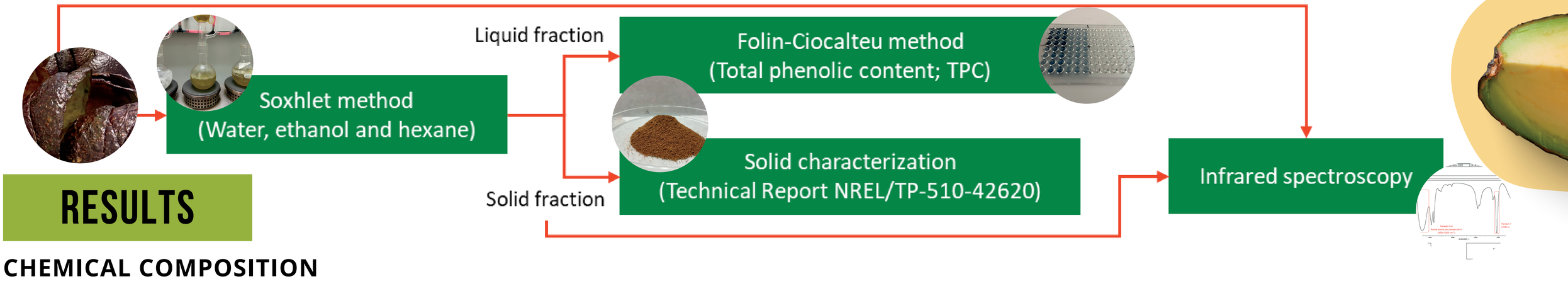
CEACTEMA

INTRODUCTION

In 2021, global avocado production reached 8.6 million tons [1]. Avocado peels, often discarded or underused, represent an unexploited and valuable resource within the industry. This study aims to assess the potential valorization of avocado peels within a biorefinery cascading scheme, aligning with the growing interest in promoting circular bioeconomy practices for sustainability.

METHODOLOGY

The figure shows the experimental procedure for the characterization of avocado peel and derived fraction obtained by Soxhlet extraction. Infrared spectroscopy was performed on the raw peel and the extracted solid.

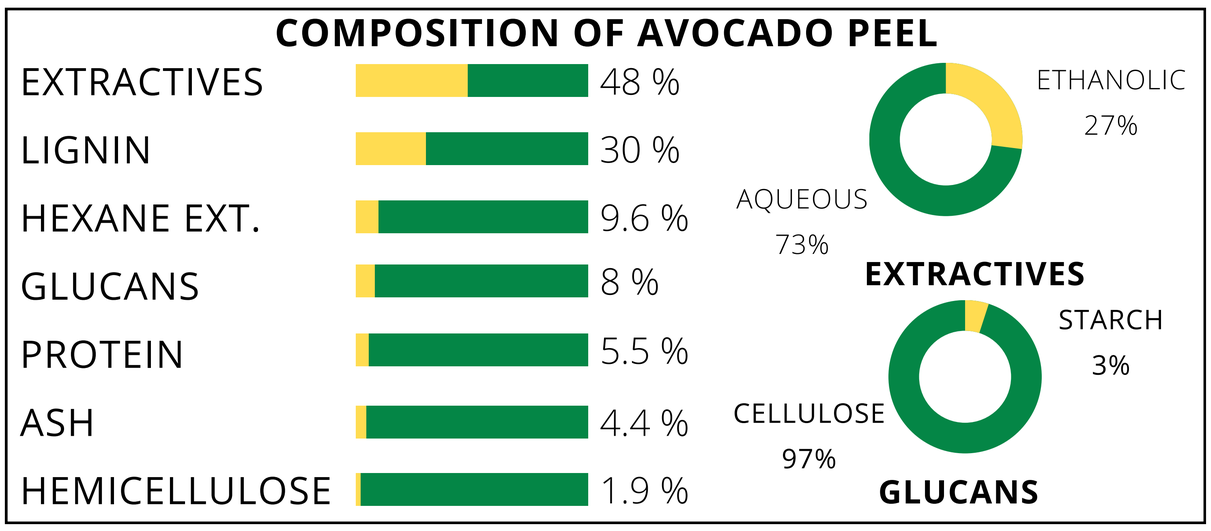


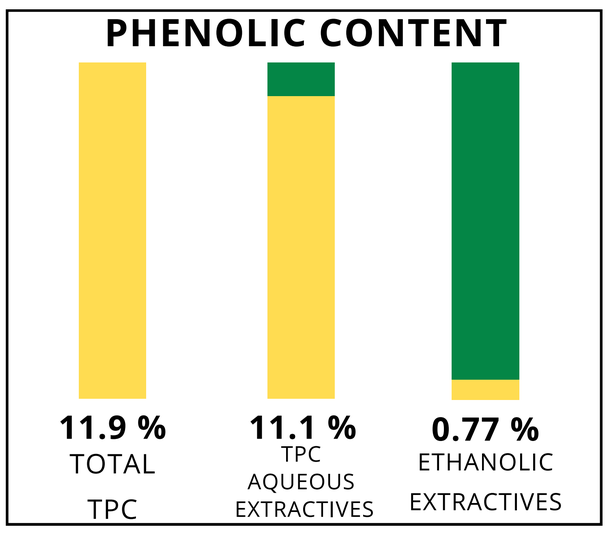
RESULTS

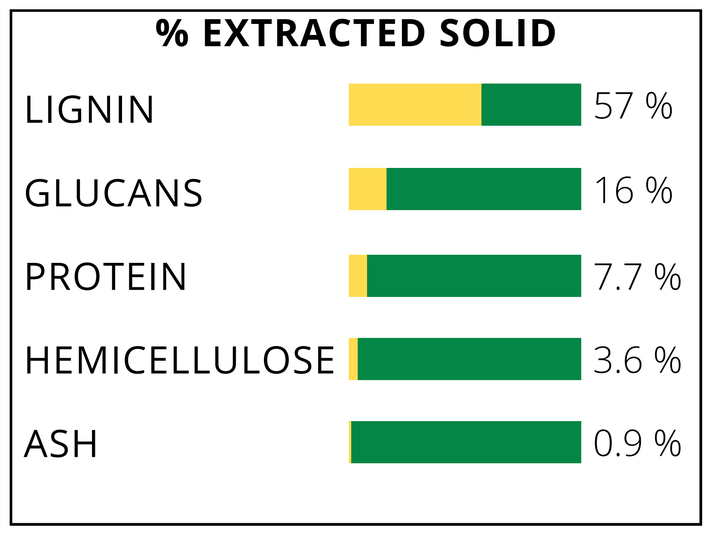
CHEMICAL COMPOSITION

The avocado samples were constituted by 14% peel, 69% mesocarp and 17% stone (% w/w, fresh basis).

The chemical composition highlighted that the major component in avocado peels are the aqueous-ethanolic extractives (48% w/w, dry biomass) with a high phenolic content (11.9% w/w, dry biomass). After the extractives were removed, the principal component of the extracted solid was lignin with 57% w/w, dry biomass, followed by glucans in the form of cellulose.

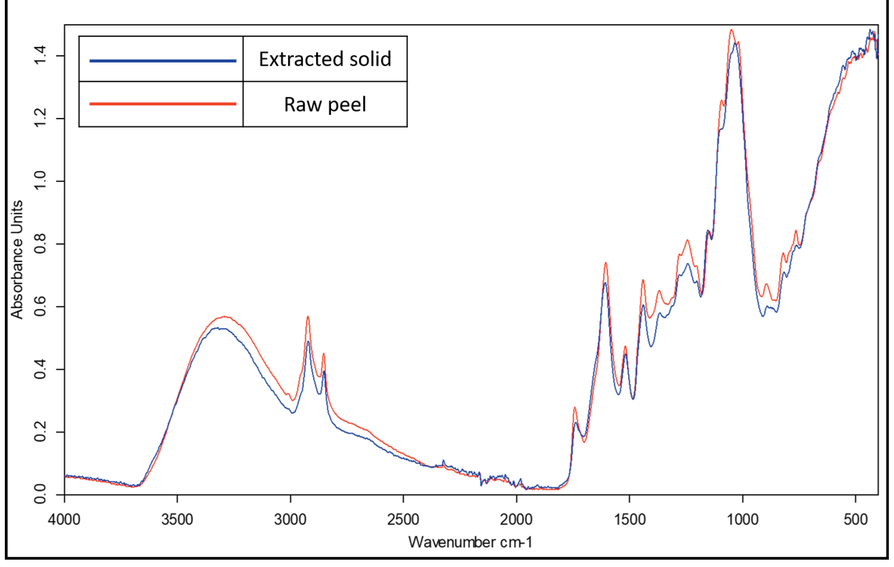






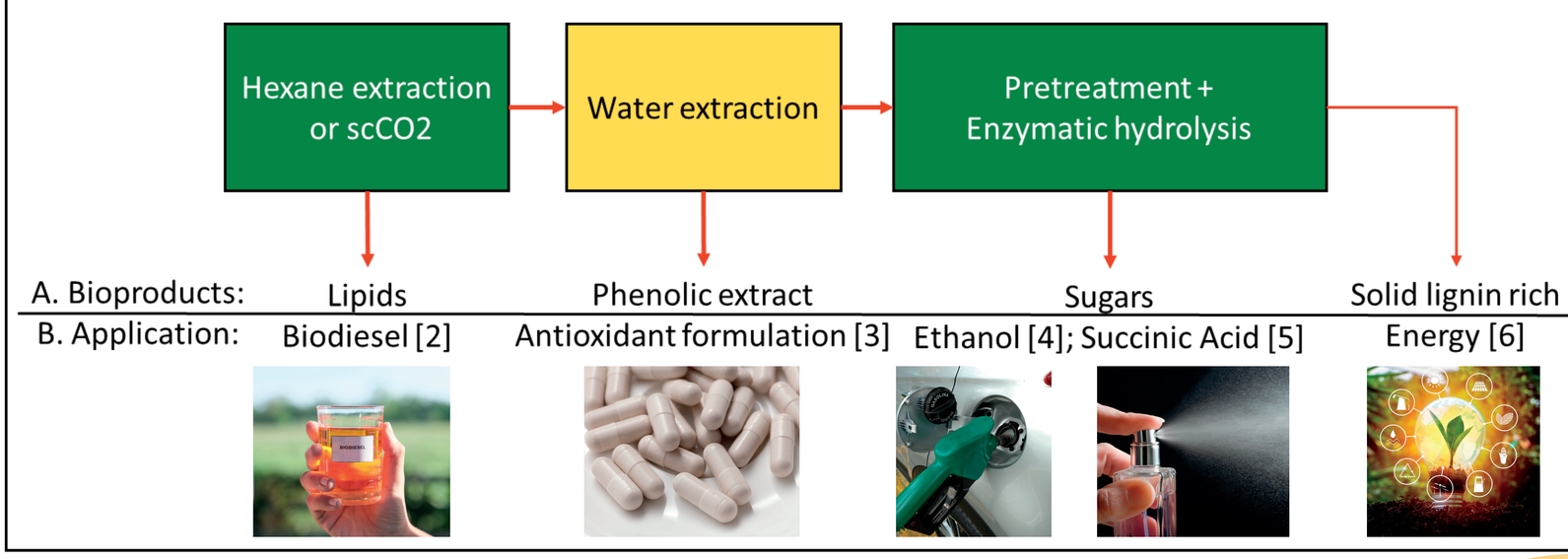
INFRARED SPECTROSCOPY

Infrared spectroscopy showed slight changes between the raw peel and the extracted solid.



CASCADING VALORIZATION BIOREFINERY PROPOSAL

According to these results, the following biorefinery scheme is proposed for the avocado peel. The bioproducts and applications are also shown.



CONCLUSION

Avocado peel is a potential bioresource for obtaining bioproducts in the context of a cascading biorefinery: antioxidant extract, lipids for biodiesel, fermentable glucose, and lignin for energy purposes.

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