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Extraction of valuable compounds from pomegranate residues: focus on the sugar content of extracts.

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Pomegranate fruits are a rich source of bioactive compounds including phenolic acids, tannins, flavonols and anthocyanins. After juice is produced, a residue formed by peel, seeds and fruit pulp is released. This residue could be valorized through the extraction of valuable compounds as polyphenolics. Many studies have already been carried out to produce antioxidant extracts from pomegranate peels or to produce oil from pomegranate seeds. The extraction processes are mostly solvent extractions (maceration, high pressure or high temperature extractions) and supercritical CO_2 in case of the oil recovery from seeds. Produced extracts are usually characterized for their total phenolic contents and antioxidant activities.

In the present study, various extraction processes have been performed to produce extracts from freeze-dried pomegranate residues: maceration with ethanol or water, pressurized ethanol extraction, supercritical CO_2 extraction with various percentage of ethanol as cosolvent. Most extracts were found to be sticky indicating that sugars have been extracted including by the scCO2+EtOH conditions. Hence, beyond their total phenolic content, extracts were characterized for their sugar content. The influence of the extraction process and of operating conditions on sugar yield and kinetics of sugar extractions will be given.