

## **Orange Pomace and Peel Extraction Processes towards Sustainable Utilization: A Short Review**

### **ABSTRACT**

More than 58 million metric tonnes of oranges were produced in 2021, and the peels, which account for around one-fifth of the fruit weight, are often discarded as waste in the orange juice industry. Orange pomace and peels as wastes are used as a sustainable raw material to make valuable products for nutraceuticals. The orange peels and pomace contain pectin, phenolics, and limonene, which have been linked to various health benefits. Various green extraction methods, including supercritical carbon dioxide (ScCO<sub>2</sub>) extraction, subcritical water extraction (SWE), ultrasound-assisted extraction (UAE), and microwave-assisted extraction (MAE), are applied to valorize the orange peels and pomace. Therefore, this short review will give insight into the valorization of orange peels/pomace extraction using different extraction methods for health and wellness. This review extracts information from articles written in English and published from 2004 to 2022. The review also discusses orange production, bioactive compounds in orange peels/pomaces, green extractions, and potential uses in the food industry. Based on this review, the valorization of orange peels and pomaces can be carried out using green extraction methods with high quantities and qualities of extracts. Therefore, the extract can be used for health and wellness products.