

Bioprocessing of agri-food residues into value-added products

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Sustainable and resilient productions are based on a circular economy and minimal processing. In this frame, the valorization of agri-food residues (AFR) is a hot topic of research in zero-waste global development and for the green production of biomaterials such as those based on bacterial cellulose (BC) and lactic acid (LA). Among AFR, citrus residues have been successfully used as carbon sources in culture media for microbial fermentation (1). However, existing methods for valorizing citrus waste often require chemical pretreatments of the biomass, which have a high environmental impact (2). In order to establish an ecofriendly and sustainable strategy for production of LA and BC we pointed to a moderately thermophilic lactic acid producer *Weizmannia coagulans* (3) strain and to a bacterial/yeast community (Kombucha) respectively, exploiting their degradative ability of complex biomasses. Our result show: i) the feasibility of replacing the standard growth medium with less expensive carbon/nitrogen which are widely available at low-cost, and suitable for fermentation growth; ii) the setting up of a green process for BC and LA production based on untreated biomass; iii) the potential of citrus waste to release bioactive compounds with several health-promoting and therapeutic advantages upon microbial fermentation.

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