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5th Latin American Congress on
Biorefineries
From laboratory to industrial practice
January 7-9, 2019 - Concepción, Chile



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Grape cane by-products as food additives: Changes in phenolic profile during production and microencapsulation.

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Residues from wine industry have been the focus of many studies searching for such metabolites all around the world. Grape canes, obtained after annual pruning of vines, is a waste estimated in more than 120.000 tons per year only in Chile (Gorena et al., 2014). Grape canes have a wide diversity of polyphenolic compounds mainly oligostilbenoids and procyanidins with potential health benefits (Sáez et al., 2018). Consequently, polyphenols can be used for development of additives in functional foods.

In this work, an extract of grape canes (*Vitis vinifera* cv. Pinot noir) was produced at pilot-scale in a reactor of 750 L. The extract was encapsulated with β -cyclodextrins, and then dried by spray drying. Profiles and content of polyphenols were determined by liquid chromatography/electrospray ionisation-linear ion trap quadrupole-Orbitrap-mass spectrometry (HPLC/ESI-LTQ-Orbi-trap-MS). Change in the phenolics compositions was analysed and compared in the laboratory and pilot plant extraction as well as in microencapsulated extract.

Several changes in the phenolic profile between analytical and pilot extraction were observed such a decrease apparent of resveratrol, catechin, epicatechin and dimeric procyanidins, among others compounds. On the other hand, oligostilbenoids: **(i)** viniferin (m/z 453), **(ii)** hopeaphenol (m/z 905) and **(iii)** ampelopsin A (m/z 469) were successfully encapsulated.

The phenolic profile change during production and microencapsulation of the extract is relevant for evaluating in the future the efficiency and effectiveness of bioproducts as food additives.