

Grape cane extracts: an opportunity for the development of novel additives for food Chilean industry

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Grape canes, obtained after annual pruning of wines, is a waste estimated in more than 120.000 tons/year in Chile¹. The grape cane can be storage at controlled temperature and humidity. The system enable increase the polyphenolic compounds in the grape cane biomass². The general aim was: "To enhance the use of waste from the Chile wine industry to obtain extracts rich in stilbenes and procyanidins for future applications as functional compounds in food industries"

In this work an extract of Pinot Noir grape canes was produced at industrial scale in a reactor of 750 L. The extract was encapsulated with β cyclodextrins, and then dried by spray drying. Profiles and content of stilbenoids and procyanidins were determined by HPLC-DAD-ESI-MS/MS. Other chemical constituents as carbohydrates, organic acids, metals and lignin were also detected and quantified. Antioxidant capacity of the whole extract, using cells and cell-free assays was also evaluated. The antioxidant capacity of the Pilot scale extract was compared with a commercial product Resveravid®.

The dry extract obtained under optimal conditions (T:80 °C, t:100 min, ratio S/L:1:10) showed, a yield of 2.4 g stilbenoids/kg of dry grape cane and total stilbenoids concentration was 5.45% w/w. The antioxidant capacity (ORAC) was high 14760.66 μ mol trolox equivalent/g of extract. On the other hand, the antioxidant activity of the extract is higher than a commercial product of resveratrol (Resveravid®).

Acknowledgements:

This work was supported by projects: FONDEF D10I1104, CORFO 14IDL2-30156, BASAL PFB-27 and doctoral scholarship to Danilo Escobar from CONICYT, Chile.

Reference:

¹Vergara, C., von Baer, D., Mardones, C., Wilkens, A., Wernekinck, K., Damm, A., Macke, S., Gorena, T., and Winterhalter, P.(2012). Stilbene levels in grape cane of different cultivars in southern Chile: determination by HPLC-DAD-MS/MS method. *Journal of Agricultural and Food Chemistry*, 60, 929—933.

²Mardones C., von Baer D., Vergara C., Fuentealba C., Escobar D., Riquelme S. Un procedimiento para aumentar el contenido de estilbenos, esencialmente resveratrol, en sarmientos provenientes de las podas de *Vitis vinifera*, INAPI-CHILE CL201400341