

## The international debate on Natural bioactive compounds from Nordic viticultural by-products and wastes

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Bioactive compounds and their activity in plant produce can be directly affected by many factors starting from climatic conditions up to the processing technologies adopted. Available reports indicate Nordic fruits and berries to be rich in bioactive compounds, owed mainly to varied growing conditions like variations in light and temperatures during different stages of fruit ripening. Grapevine cultivation in Estonia has tremendously increased during the past decade and has gained popularity because of the availability of suitable cultivars for the Nordic climate. Moreover, in the spotlight of sustainable food production, grapevine cultivation could provide great possibilities for full valorization of plant biomass, because the pests and diseases of grapevines have not spread yet due to cooler temperatures. Therefore, the biomass in cooler climate is cleaner from plant protection chemicals and more suitable

for using in purpose of natural products. Fortification of natural bioactive compounds into different food products, food supplements or natural cosmetics is an increasing trend. In fruits and berries, the most abundant bioactive compounds are polyphenols including natural pigments such as anthocyanins which are mainly present in red-colored plant parts. Polyphenolic compounds are well established antioxidants which impart positive health effects in humans by binding free radicals released in cells during metabolic processes. Wine making by-products (grape marc, wine lees) and young shoots, woody canes and leaves obtained via vine canopy management still remains underutilized. In the present work, preliminary and interesting results obtained on the processing of by-products and wastes of viticultural origin obtained using green technologies will be presented.