

Wine industry residue valorization in animal diet- continual professional development through antioxidant activity research

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Poster

Romania ranks in 2012 on the 12<sup>th</sup> place in Europe and 21<sup>st</sup> place in the world in terms of wine production, with 123450 tones, resulting a large amount of waste that needs to be managed. During grape processing, it is estimated that 20% of total weight of grape fruits used results in grape pomace that presents a challenging waste disposal problem for the winery and grape juice industry. An alternative utilization of the grape pomace could involve the isolation of the grape seeds and extraction of polyphenols. Little evidence is available on the potential antioxidant properties of grape pomace (GP) when added in piglet diets. Studies investigating the use of this residue may lead to significant economic gains and to prevent or decrease environmental problems caused by GP accumulation.

In this context polyphenols' antioxidant/prooxidant activity research started in "in vitro" and "in model solutions" in university laboratory is now transferred at pilot scale trying to elaborate new diet recipes for animal feeding. The actual experiments done at the farm level in a research institute involves a high amount of work done by ungraduated, Master and PhD students besides the senior scientists running the studies. Overall during the different phases of the project, the total polyphenol composition of the feed is determined, "in vitro" on cell culture the antioxidant and anti-inflammatory effect of grape seed and pomace extracts are tested, animals are fed with an enriched diet in polyphenols and at the end the polyphenols' absorption, health status and general state of the animals are checked.

The project focuses on the construction, validation and development of a pipeline to transform wine industry waste into sustainable feed ingredients which further will be translated in feed

recipes for animal farms. Generating a greater profit from the grape residue should grow the bio-economy across the whole chain from wineries to customer, involving the research institutes and universities, and deliver on the circular economy agenda also. Working in the framework of this project, besides of getting professional experience in research and its applications, the students would get a broader view of practical reuse of agrifood waste.

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