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A metabolomic perspective on *S. cerevisiae* in chardonnay wine fermentation

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The transformation of grape juice to wine is a complex metabolic relationship between two species, *V. vinifera*and *S. cerevisiae*.The final molecular composition developed from the grape/yeast relationship contributes to the flavor, aroma and mouthfeel of the wine.Additionally, the dynamics of metabolite production at each stage of fermentation have not been fully investigated.In this study, we examined this complex relationship by identifying the exo- and endo-metabolome (the collection of metabolites present extra- and intra-cellularly, respectively) at three time points of a chardonnay wine fermentation.We identified and tracked 227 metabolites in the exometabolome and 404 metabolites in the endometabolome, each of which was grouped into metabolic pathways or families.Considerable metabolic variation was seen at each stage of fermentation, illuminating metabolic patterns during fermentation that suggest regulation of metabolic pathways is coupled to fermentation progress.Analysis of the differential utilization and production of primary and secondary metabolites during a wine fermentation in this work provides key understanding of cell communication mechanisms, metabolic engineering and industrial biotechnological processes.

Biography

Chandra Richter began her scientific career at University of California, Santa Cruz where she earned her Bachelor's of Science degree.She continued her studies at the University of Colorado at Boulder where she earned her Doctor of Philosophy degree in Molecular, Cellular and Developmental Biology.After completing her doctorate work, she joined the scientific team at E&J Gallo Winery where she manages a research group.

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