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Characterization of the aroma of red Frontenac table wines by descriptive analysis

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Background. Frontenac is a cold-hardy, interspecific hybrid used in rosé, red, and port-style wines. It is a recent introduction from the University of Minnesota breeding program, and the first commercial vintages of Frontenac were produced in 1998. Though popularly described as exhibiting notes of cherry, black currant, plum and spice, the sensory profile of Frontenac has not been formally assessed. Our goal was to develop a set of descriptors that define aromas common to Frontenac as well as those that differentiate among commercially produced Frontenac wines.



Experimental design. Six commercially-produced Frontenac wines were analyzed. Wines ranged from 2 to 8 years old the time of the study, and all were produced with some fermentation on the skins. A panel of 11 red-wine consumers developed descriptors for the wines, and they were subsequently trained to recognize each descriptor using single-note standards and identify quantitative differences in aroma intensity. Finally, the aroma attributes were evaluated by each panelist for each wine in duplicate. An analytical method (GC-MS) was used to quantify volatiles.

Results. Panelists identified 13 discrete aromas in Frontenac wines: blackberry, black currant, cherry, jammy, floral, geranium, black pepper, spice, cooked vegetable, fresh green, earthy, cedar, and tamari. However, six of these aromas were based on reference standards that differed from those developed to describe *V. vinifera* wines. The most intense notes in Frontenac were black currant, cherry, and cooked vegetable. The intensity of blackberry, black currant, jammy, cooked vegetable, fresh green, cedar, floral, geranium, tamari, and earthy differed among the wines. The geranium note present in several wines was not caused by the compound associated with “geranium taint”, the off-odor produced from potassium sorbate by lactic acid bacteria.

Conclusions:

- Fruity (blackberry, black currant, cherry), green (fresh green, cooked vegetable), and geranium notes are the most typical descriptors for these Frontenac wines.
- Viticultural and processing parameters may affect the intensity of the cooked vegetable, fresh green, blackberry, jammy, and floral attributes.
- The geranium note showed the greatest intensity variation among wines. In Frontenac wines, this note is not due to “geranium taint” (2-ethoxyhexa-3,5-diene), but may be unique hybrid grape sensory attribute.

The bottom line. Fruity (blackberry, black currant, cherry), green (fresh green, cooked vegetable), and geranium notes are the most typical descriptors for these Frontenac wines. This sensory vocabulary may assist the industry in marketing their product to wine consumers unfamiliar with this new grape variety.