Media release

Cool Climate Oenology and Viticulture Institute (CCOVI)

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Can Icewine Be Too Sweet For Its Own Good?

This may come as a tough one to swallow: Icewine juice can be too sweet for its own good, says a new study by a researcher at the Cool Climate Oenology and Viticulture Institute at Brock University.

Debra Inglis, Associate Professor of Biological Sciences at Brock University and lead author of the study, stressed the value of the research for Canada's role as the global leader in Icewine production. "It's an important step toward setting Icewine quality standards so that we can continue to lead the international market. And, by identifying chemical and sensory markers of the product, we're starting to define what truly makes Canadian Icewine unique," says Inglis.

Inglis and her team used chemical and microbial analyses of Icewine fermentations to show that raising the sugar level of Icewine juice above 42 °Brix (i.e., 42 per cent sugar by weight in solution) hinders yeast growth, fermentation rate and alcohol production. The researchers also found that yeast produce more acetic acid – the primary source of volatile acidity (VA), a wine fault – as a response to greater stress imposed by super-sweet Icewine juice.

In fact, say the scientists, Icewine juice in excess of 42 °Brix is so stressful that yeast have extreme difficulty producing a minimum of 10 per cent alcohol by volume – the industry standard for Icewine. And the researchers advise that, in excess of 52.5 °Brix, Icewine juice is theoretically non-fermentable by yeast.

Along with finding ideal conditions for Icewine fermentations, Inglis and her team are working to better understand yeast metabolism as it relates to acetic acid production. "Over the past eight years, we have started to unravel the yeast metabolic pathway used to produce acetic acid during Icewine fermentation and defined ways to reduce its production," says Inglis. "We are also in the process of screening different yeast strains at the genetic level to identify which ones are best suited for Icewine fermentations."

The study and a related one by Inglis appear in the latest issue of the *Journal of Applied Microbiology*. Both studies were funded by the Natural Sciences and Engineering Research Council of Canada.

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