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CATHARINA SOUR



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BY GORDON STRONG

CATHARINA SOUR

The Brazilians stressed that tropical fruit isn't required, but fresh fruit is – it is a fruit-forward beer, and you want the best examples you can find . . .

CATHARINA SOUR BY THE NUMBERS

OG: 1.039–1.048
FG: 1.002–1.010
SRM: . . . 2-7 (varies with fruit)
IBU: 2-8
ABV: 4.0–5.5%



I'm fortunate to travel frequently for beer-related events, and I always try to keep an eye out for interesting beers or styles. This past August, I was in Florianópolis, Brazil in the state of Santa Catarina for a homebrew competition put on by their state homebrew club (ACerva Catarinense). When we judged best-of-show, I was told there was a local style as one of the entries, a Catharina Sour. I asked the organizer to describe the style to me, and was surprised when he handed me a full BJCP-style writeup. It was in Portuguese, of course, but I recognized enough of the words to understand the intent – it was a standard-strength wheat ale that had been kettle soured and had fresh tropical fruit added.

This particular example had guava, a particularly aromatic tropical fruit, but I also tried several other examples while in the area, including one called Daenerys that had a combination of passionfruit and dragonfruit (made by Armada Cervejeira located in São José, Brazil), and a great tangerine sour (Cervejaria UNIKA Tangerina, based in Rancho Queimado, Brazil). The locals arranged a further tasting for me, there was a guava and tamarind, a wild raspberry, a butía (a rainforest fruit sometimes used to flavor cachaça), a pineapple and tangerine, and one with mixed berries.

Brazil is a paradise of tropical fruit, many of which aren't exported since they are too fragile. The Brazilians stressed that tropical fruit isn't required, but fresh fruit is – it is a fruit-forward beer, and you want the best examples you can find, making this a seasonal-based project.

When I was describing this style to some people, they asked me, "How is it different than a Florida Weisse?" I'll confess I never heard of that as a style, so I had to do some additional

research. Apparently, there are similarities in using tropical fruit in Florida in a Berliner Weisse style. However, the base beer fits the Berliner Weisse style, so a Florida Weisse is actually a type of fruit beer (BJCP Style 29A, base style is Berliner Weisse, with named varieties of added fruit). The base for a Catharina Sour is out of style for a Berliner Weisse (it's too strong), so it would be better as BJCP Style 28C (Wild Specialty Beer). It's a subtle difference, but it could cause confusion if judged in a competition strictly to style.

I could see adding Catharina Sour to the BJCP Style Guidelines in the appendix for local styles for Brazil since it is a popular style available from multiple breweries, is distributed commercially, and has a strong local following. Outside of Brazil, it may be better to give a longer description and enter it as a Wild Specialty Beer.

HISTORY

In the southern part of Brazil, there is a strong German influence from colonial times. Many people have German surnames, and traditional German beer styles are well-recognized and popular. Just don't make the obvious World War II jokes – nobody finds them funny.

Brazil has a growing craft beer scene, and they use the BJCP Style Guidelines as a way to learn about new styles (a fact that was surprising and humbling to me). Combine these factors with knowledge of traditional German styles and the wide availability of amazing fresh fruit, and the basis for experimentation is obvious.

A few years ago, craft breweries and homebrewers in the Brazilian state of Santa Catarina began this experimentation with fruited stronger sour beers and took the initiative to formally define a style as a way of developing a local beer personality. I have

CATHARINA GUAJAVA

(5 gallons/19 L, all-grain)

OG = 1.047 FG = 1.008

IBU = 9 SRM = 3 ABV = 5.2%

INGREDIENTS

6 lbs. (2.7 kg) Pilsner malt

3 lbs. 8 oz. (1.6 kg) wheat malt

3 AAU Magnum hops (30 min.)

(0.25 oz./7 g at 12% alpha acids)

5.5 lbs. (2.5 kg) fresh guava, peeled, frozen, then thawed

(3) 80 g bottles “Yakult 40” brand probiotic drink (*Lactobacillus casei Shirota*)

SafAle US-05 or other clean, highly attenuative ale yeast

$\frac{7}{8}$ cup corn sugar (if priming)

STEP BY STEP

Adjust brewing water with lactic acid, calcium sulfate, and calcium chloride to achieve a mash pH of 5.3 with 70ppm of calcium and a sulfate:chloride ratio of 1:1. I would use reverse osmosis (RO) water and adjust all brewing water to a pH of 5.5, then add $\frac{1}{2}$ tsp of calcium sulfate and calcium chloride to the mash.

This recipe uses a step mash with rests at 122 °F (50 °C) for 5 minutes, 153 °F (67 °C) for 70 minutes, and 169 °F (76 °C) for 10 minutes. Sparge and collect 6.5 gallons (24.5 L) of wort.

Boil the wort for 10 minutes to sanitize without hops, then chill to 113 °F (45 °C). Acidify with lactic acid to a pH of 4.5.

Pitch the *Lactobacillus* (probiotic drinks) directly into the boil kettle. Seal the boil kettle using plastic wrap. Purge with CO₂ periodically. Keep the temperature at 113 °F (45 °C) using an electric heater or other method for 36 hours or until the pH reaches 3.5. Perform a second boil for 70 minutes, adding the hops with 30 minutes remaining. Chill the wort to 64 °F (18 °C), pitch the yeast, and ferment until SG 1.014. Add the

guava and allow fermentation to finish.

Clarify if necessary. Rack the beer, prime and bottle condition, or keg and force carbonate.

CATHARINA GUAJAVA

(5 gallons/19 L, extract only)

OG = 1.047 FG = 1.008

IBU = 9 SRM = 3 ABV = 5.2%

INGREDIENTS

6.2 lbs. (2.8 kg) weizen liquid malt extract

3 AAU Magnum hops (30 min.)

(0.25 oz./7 g at 12% alpha acids)

5.5 lbs. (2.5 kg) fresh guava, peeled, frozen, then thawed

(3) 80 g bottles “Yakult 40” brand probiotic drink (*Lactobacillus casei Shirota*)

SafAle US-05 or other clean, highly attenuative ale yeast

$\frac{7}{8}$ cup corn sugar (if priming)

STEP BY STEP

Fill 6.5 gal. (24.5 L) of water in the brew kettle; heat to 158 °F (70 °C).

Add the malt extract and stir thoroughly to dissolve completely. You do not want to feel liquid extract at the bottom of the kettle when stirring with your spoon. Turn the heat back on and bring to a boil. Boil the wort for 10 minutes to sanitize without hops, then chill to 113 °F (45 °C). Acidify with lactic acid to a pH of 4.5.

Pitch the *Lactobacillus* (probiotic drinks) directly into the boil kettle. Seal the boil kettle using plastic wrap. Purge with CO₂ periodically. Keep the temperature at 113 °F (45 °C) using an electric heater or other method for 36 hours or until the pH reaches 3.5. Perform a second boil for 70 minutes, adding the hops with 30 minutes remaining. Chill the wort to 64 °F (18 °C), pitch the yeast, and ferment until SG 1.014. Add the guava and allow fermentation to finish.

Clarify if necessary. Rack the beer, prime and bottle condition, or keg and force carbonate.

given several talks in South America about brewing with local ingredients; developing styles based on what ingredients are available, and what styles pair well with them is something I strongly recommend. So I'm particularly pleased to discover local brewers doing just that.

The formal definition for the style was produced by the state's craft brewery association, and used as the basis for workshops at their meetings. While Brazilians have been adding fruit to their beer for a long time, this style definition is the first step at developing a local identity that resonates.

SENSORY PROFILE

The Catharina Sour is basically a strong (4.0 to 5.5% ABV) Berliner Weisse-like beer using wheat and Pilsner malt, low IBUs (2-8), having a lactic sourness, and containing fresh fruit. The beer is meant to be light and refreshing, and is highly carbonated. The sourness is balanced but prominent, and the fruit should always have a fresh, aromatic quality. The weather in Brazil is often quite hot, so offering refreshing beers is a major goal for brewers of the region.

The sourness level is typically moderate, but shouldn't be so sharp as to overshadow the fruit. The fruit can bring an impression of sweetness but the beer must be well-attenuated. Bitterness is so low as to be non-perceptible. The sourness is what provides the balance to the fruit character. Hop aroma and flavor is not present either.

Since the influence is Berliner Weisse, the quality of the sourness deserves mention. A clean lactic sourness is needed, not a funky sourness, or any kind of acetic quality. The fermentation profile is neutral so that the fruit and sourness take center stage. Malt is also quite low in flavor and shouldn't form a major part of the beer.

When you think about the tradition of adding syrups to Berliner Weisse to take some of the edge off the sourness, you get the general idea of a Catharina Sour. The fruit is providing that softness that syrups provide in Berliner Weisse, but it's part of the style not an additive at serving time. This explains the softness of the acidity in the finish

of the beer, not sharp like a lambic.

The appearance of the beer is usually driven by the fruit added, but should be relatively pale if the fruit doesn't have prominent colors. Clarity can vary from clear to hazy, especially if pectins are present. But as with most beers, I think it looks better clear. The high carbonation and wheat combine to give it a large, persistent head, often tinged with the color of the fruit.

The body of the beer is relatively light, which helps keep the beer refreshing along with the high carbonation level. Although a stronger version of Berliner Weisse, it shouldn't have any noticeable alcohol warming.

BREWING INGREDIENTS AND METHODS

As a wheat beer, wheat should make up a significant part of the grist (50% is common) with Pilsner malt making up the remainder. Additional malts are not necessary, and the additional flavor components would not fit the style. The mash program should favor attenuation, so a single infusion mash in the 149 to 153 °F (65 to 67 °C) range is appropriate, as is a step mash.

Hops are almost an afterthought, but it's a German style so German hops are appropriate. Lower-alpha noble-type hops are easy to use, but a neutral bittering hop, like Magnum, can also be used. Just be careful about using too much; the bitterness should not be noticeable. Only bittering hops are used, no aroma or flavor additions should be present.

The method for souring is a very important aspect to discuss. Kettle souring is the preferred approach. While sour mashing is sometimes used, it won't generate the same clean sourness that happens when pitching pure *Lactobacillus* strains. Using lactic acid to provide the sourness won't give the same level of complexity, and can add a metallic or mineral flavor that is wholly unwanted.

If pure strains of *Lactobacillus* can be found, they make a good choice. However, most Brazilians are using probiotic drinks as the source of *Lacto*. I was a bit skeptical, but the results speak for themselves – they are very clean and pleasant-tasting, and work

quickly if held to a warm temperature (above body temperature). Something around 104 °F (40 °C) works for most strains, but don't let the temperature get below 95 °F (35 °C).

Lactobacillus hates hops, so don't add any hops when the souring is taking place. Just boil briefly to sanitize the wort, chill and pitch the *Lacto*, and keep air out of the kettle while the souring is taking place. Purging with CO₂ and covering with plastic wrap is what many breweries do.

Monitoring the pH is pretty much the only way to tell how the souring is progressing. Letting the pH get down to about 3.2 is about right, as the wort still needs to ferment with brewers yeast. Once the pH target is hit, boil the wort again to kill the *Lacto*, add a small amount of hops for preservative effects only, and prepare to ferment using neutral, attenuative ale yeast.

Fruit is added after fermentation, and should be very sweet and ripe. Many tropical fruits have a strong acidity, particularly when under-ripe. The fruit will be added to taste. A good starting point is about 10% of the total volume of the beer as fruit juice. Taste on a small scale before committing to the large batch. Fruit will vary by variety and ripeness, so you always have to taste to get this part right. The final pH of the beer will often rise after the fruit addition, so be sure to do your final tasting after the fruit is added. A final pH of around 3.5 is pleasantly tart without ripping your lips off.

I saw so many different fruits used in this style, I think it's wide open as to your choice. I saw many versions with a single fruit, but I also saw two fruit combinations frequently. The only one I saw that had more than two fruits involved was a mixed berry combination. Getting the balance right between multiple fruits is another layer of complexity that is likely best avoided.

When using fruit, be sure to make the fruit juices available and avoid extra tannins that can cause astringency and harshness. Fruit that is frozen and thawed ruptures cell walls and makes the juices available. Running the fruit through a juicer can separate the more vegetal aspects of the fruit, especially seeds. Some fruit can be

processed and squeezed with cheese-cloth to extract the juice. Just be aware the skins, seeds, stems, and other vegetal portions of the fruit will carry the most tannins, so focus on the juice. If pureed or other processed fruit is used, likewise strain it to remove seeds and other tannin sources. If some form of concentrate is used, try to find pure fruit and not fruit that has sweeteners or other additives. The freshest forms of fruit are always best, but may be hard to find.

HOME BREW EXAMPLE

I was fortunate to get the recipe that won best of show at that competition I mentioned in Florianópolis. It's a guava Catharina Sour from Daniel Dinslaken (thanks to Fabito Koerich Ramos for the translation from Portuguese). Comparing it to other examples from brewers, I think it's fairly representative of this Brazilian style.

When I was judging the beer, I thought it must have passionfruit in it. It wasn't until after I returned home and bought a fresh guava from an Asian market that I found it had a strong passionfruit flavor, combined with pear. I only had guava as a jellied paste before, so I was missing guava's fresh-fruit aromatics.

The recipe notes say it's a Berliner Weisse recipe with an increased alcohol content, acidified with *Lactobacillus* using the kettle sour method, fermented with a clean ale yeast. The fresh guava fruit was added after primary fermentation was complete.

The grist is fairly standard, using Pilsner malt and wheat malt, with the wheat being about 36% of the grist. I would have no problem bumping the wheat up to 50% of the grist. A step mash is used to help break down the wheat and avoid too big of a body. A brief boil is performed without hops to sanitize the wort prior to acidification.

The kettle sour technique is fairly typical, and involves measuring pH at several steps. The wort is first acidified to a pH of 4.5 using lactic acid, to help prevent unwanted bacterial growth. A probiotic drink is used to provide a clean strain of *Lactobacillus*, and then allowed to work at a warm temperature until the pH is reduced to 3.5.

Hops are used at a light level after the acidification has occurred, and just reaches a level of 10 IBUs. This second boil kills off all the *Lactobacillus* and helps ensure a stable product.

A neutral ale yeast is used for primary fermentation, and the fruit is added at the end of primary fermentation. Recipe notes say the fruit was peeled, frozen, then thawed to help rupture the cell walls and make the fruit juices more available.

If you enter this in a competition, try the BJCP 28C Wild Specialty Beer category but specify as a comment that you are making a Catharina Sour (strong Berliner Weisse) with guava. 