

Funky Beers, Tuesday 6th of February, 2024, Department Birkerød

Funky beers are made with a yeast family called *Brettanomyces*.



Karl Erik Jessen,
Department Birkerød

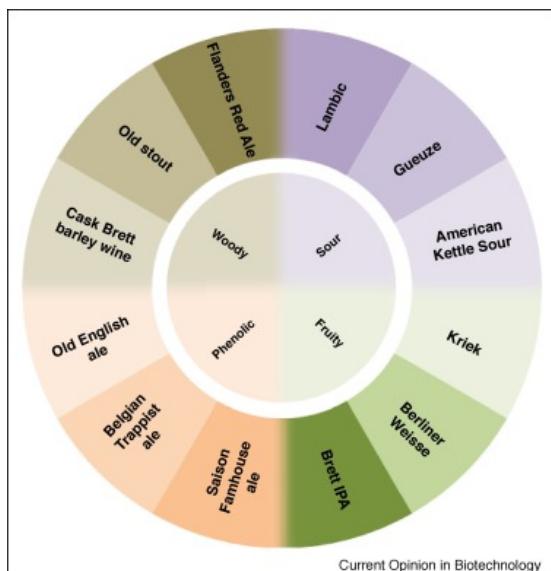


Keld Ølykke
Brew

Keld Ølykke

Introduction

In 1903, the first *Brettanomyces* yeast species was isolated by Hjelte Clausen at the Carlsberg Research Laboratory, and later referred to as *Brettanomyces clausenii*. *Brettanomyces* are non-conventional yeasts and can be isolated from different sources such as fruit peels, kombucha, kefir, tea, olives, sodas and wooden barrels, among others [1]. In breweries and especially wineries, *Brettanomyces* are typically recognized as a spoilage yeasts, being the cause of major economic losses. Its presence can completely change the organoleptic properties of the product, creating a controversial character, which is mainly due to the production of secondary metabolites when performing alcoholic fermentation. These metabolites have been associated to undesirable flavors, depicted as horse sweat, barnyard, medicinal or leathery [2]. However, applied in the right way *Brettanomyces* can contribute to exotic flavors (e.g. pineapple, mango, pear, grape) and today they are used in craft and specialty beers, and also finds application in natural wines. *Brettanomyces* are especially abundant in Belgian lambic and gueuze beers after spontaneous fermentation, being crucial for its particular taste [3]. The recent raise of the craft beer industry, along with the latest scientific discoveries have broadened *Brettanomyces* applications for novel flavors in unexplored beer styles (Figure 1). This review will give a concise view on the recent advances and contributions in understanding *Brettanomyces* species, including genomics, fermentation characteristics and flavor development, always with focus on beer production. Despite several *Brettanomyces* species being known, and the teleomorph form being called Dekkera [4], along this review the term *Brettanomyces* will be used to refer to the most common species *Brettanomyces bruxellensis* and *anomalus*.



	<i>Brettanomyces</i>	<i>S. pastorianus</i>	<i>S. cerevisiae</i>
Consumption	Glucose	✓	✓
	Maltose	✓	✓
	Maltriose	✓	✓
	Dextrins	✓	✗
	Celllobiose	✓	✗ ₁
	Nitrate	✓	✗
Production	Ethanol	✓	✓
	Glycerol	✗ ₂	✓
	Acetic acid	✓	✗ ₃
	Phenolic Off-Flavor	✓	✗
	Crabtree	✓	✓
Fermentation	Custers	✓	✗
	Optimal Brewing Temperature (°C)	21-25	14-16
	Attenuation	High	Normal
	Flocculation	Low	Low-High
Strain improvement techniques	Mating/Breeding	✗	✓
	UV sensitivity	✓	✓
	Homologous Recombination	✗	✓
	CRISPR-Cas9	✗	✓

Source: "The raise of *Brettanomyces* yeast species for beer production" by Marc Serra Colomer, Birgitte Funch, Jochen Forster from Carlsberg Research Laboratory, Carlsberg A/S, J.C. Jacobsens Gade 4, 1799 Copenhagen V, Denmark <https://www.sciencedirect.com/science/article/pii/S0958166918300922>

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1st Half - Danish Funky Beers



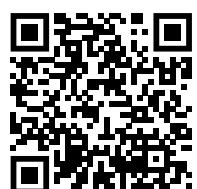
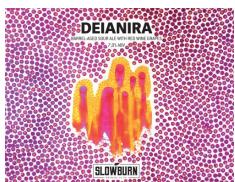
5.6% ABV, ~31 IBU.
Golden. White Top.
Aroma of Stonefruit/Citrus, Cloves, Hay and Herbs.
Med. Body & Carb.
Dry taste of Citrus/Orange, Gloves/Cinnamon, Gum, Metal and Flowers.



7.5% ABV.
Brett Invictus a cask-aged version of Hoppe Beer's "Sol Invictus".
The beer has aged 24 months in red wine casks together with brettanomyce.
The beer is fresh and acidic, with Brettanomyce providing good acidity and a delicious taste of green apples and a bit of orange that comes from the hops.



6.5% ABV.
Miranda is a funky and flavorful wild ale that is perfect for a hot day.
The blend of foudre, small barrel, and fresh wildly fermented beers creates a complex and interesting flavor profile. The dry hopping with modern German hops adds a touch of fruitiness and spice, while the coriander and orange peel add a touch of earthiness and bitterness.
Miranda is a great beer to enjoy on its own, but it also pairs well with seafood, poultry, or cheese.



7% ABV. Deianira is a mixed fermentation ale brewed with barley, wheat and oats and fermented in used red wine barrels with a mixed culture of Brettanomyces and Lactobacillus. Finally we harvested local red wine grapes from our neighbour Nordlund Vingård and macerated the beer on the crushed grapes for 6 months before bottle conditioning.
The result is a beautiful pink hybrid between a juicy rosé and a wild ale with a balanced tartness. Serve at 8°C.

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2nd Half - International Funky Beers



4.4% ABV.

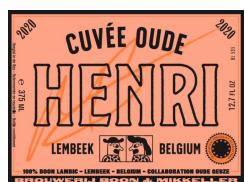
Berliner weisse fermented with lactobacillus and brettanomyces and aged 12 months in rum, whiskey and port wine barrels. Bottled March 2020.



5.7% ABV.

Brett Porter is inspired by the old London Porters, superstar beers of the 1800s, which were preserved in huge wooden tuns in which Brettanomyces yeasts developed. It was not barreled, but co-fermented with our house Brettanomyces, and brewed from magnificent special English malts.

Its dress is black with a ruby tint. Its foam, dark beige, is fine and persistent. The Brettanomyces are very present on the nose, giving it a vinous character with very ripe cherries like an old kirsh, and a little leather. A roasted and slightly smoked touch completes the picture. These aromas are found on the palate, added with notes of mocha, cocoa powder and prunes.



7% ABV.

Limited Edition Oude Geuze

Today marks the release of our 5th collaboration with @brouwerij_boon, Cuvée Oude Henri.

And my oh my, you are in for a special treat!!

This Oude Geuze consists of a blend of 1 and 3 year old lambic, that was aged on two special oak foeders which were originally used before by a French producer of a famous white bubbly wine.

We aren't allowed to mention its name, but you'll definitely taste what we're talking about?

We really treasure our yearly collaboration with Boon, because it allows us to push boundaries and play around with a very traditional beer style together with some of the most skilled lambic producers in the world.



6.2% ABV.

NOTE: The ABV-value of this beer varies, in the United States 6.9% is used. The Orval's brewery produces only one beer to sell, a beer with a high fermentation that continues in the bottle. It is 6.2% ABV.

This beer is brewed exclusively from spring water, barley malt, hop cones, candy sugar, and yeast. The aroma and the fine taste are due more to the hop cones and the yeast than to the malt that is used.

What's special about Orval's beer is that hops are added at two different stages of the production process. First, in the brewing room, a large quantity of very fine hops are added – this produces the famous bitter taste and is the reason why the beer keeps for a longer period of time. Later, in the storage cellars, hops are once again added. This is the so-called British "dry hopping," which produces the delightful aroma that completely enraptures even the most carefully forewarned taster.

In the tasting room, Orval's beer and cheese make a really good pair: the unique shape of the bottle and the glass, the design of the label, the coasters and other publicity materials – it's all a legacy from the early 1930's.